



TOWN OF HARVARD
OPEN SPACE & RECREATION PLAN
2016 – 2023



Protecting Harvard's Rural Character

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Front Cover: Paul Willard (aka the Grumpy Farmer) – descendant of one of the early settlers of Harvard, long-time farmer, wildlife photographer, Harvard Animal Control Officer, and Chair of the Harvard Conservation Commission

Photography: Liz Allard, Peter Dorward, Tom Murray, Jessie Panek, Wendy Sisson, Joanne Ward



Town of Harvard – Aerial View

Section 1: PLAN SUMMARY

This Open Space & Recreation Plan represents the Town's comprehensive approach to protecting its abundant scenic and natural resources, and to provide recreational opportunities for the public. It is intended to be used as a tool by local leaders to help ensure that the Town maintains its scenic beauty and landscape character, while working to accommodate growth and the increased demand for recreational facilities.

The Plan contains:

- A compilation and analysis of the Town's natural resources - its waterways, forests, and wildlife habitats
- An existing inventory of all permanently protected and unprotected open space and outdoor recreational facilities within the Town
- Detailed maps showing special landscape features, water resources, open spaces, habitat and zoning

The Conservation Commission elected to not include the portions of Devens that fall within the Town of Harvard boundaries in this plan as Devens has developed its own Open Space and Recreation Plan.

Over half of the Town of Harvard is currently open space which defines the town's rural character that its residents value so highly. Approximately half of the current open space is not permanently protected. The largest part of this unprotected land is currently in agriculture which is a prime candidate for development.

In a town-wide survey, the residents of Harvard overwhelmingly reaffirmed that they value the open space in town and the Town's recreational facilities for organized sports and individuals. The survey also showed that most residents think the Town needs more open space and recreational facilities, but at the same time the Town must do a better job of maintaining existing open space.

The product of the public input to and analysis in this Plan is a seven year action plan which includes:

- Providing a funding stream to obtain and protect Open Space
- Protecting the rural character of the Town – it's agricultural land, historic villages and view sheds
- Protecting Bare Hill Pond as an important shared resource
- Creating an interconnected trail network and walkways
- Providing recreational facilities for all Harvard residents, and improving existing facilities
- Protecting groundwater, native plants and animal species
- Maintaining and improving the Town's existing Open Space

Section 2: INTRODUCTION

A. Statement of Purpose

This sixth revision of the Harvard Open Space and Recreation Plan provides a model to be used for maintaining the Town's rural nature, retaining its individual character, providing recreation facilities, as well as providing its citizens with a safe, healthy, and pleasant place to live.

According to the Massachusetts Audubon Society report, *Losing Ground*, Harvard is within the sprawl frontier – where important natural resources are under the greatest threat of being lost or degraded due to impending rapid growth and development.¹ In the past five years over \$350M has been invested in road and rail improvements that will move commuters more quickly and easily along the Route 2 corridor. At the same time, the latest projections from UMass's Donahue Institute show Harvard's population increasing by just shy of 2,000 people over the next 20 years.²

Residential and business growth along the Route 2 and Interstate 495 corridors is putting pressure on open space for more housing and more business development. Rising land values and high property taxes drive older residents who own large land parcels to sell property for development. The purpose of this plan is to help insure that the things the Town values most are not lost.

A majority of homes and businesses in Harvard depend on wells fed by groundwater. There are several Public Water Supply systems within Town, including one that serves the homes and businesses in the Town Center. The most important asset that we must protect is our water supply. Lakes, ponds, rivers, streams, and wetlands of all types have been given priority consideration in this Plan. Orchards, working farms, open fields, woodlands, wetlands, all with diverse plant and animal habitats, support a healthy ecosystem. Vistas east and west, old stone walls, glacial remains, winding roads, antique houses, and old farmsteads provide beauty and educational opportunities to the community. All these elements in their unique combinations create the Town's unique character.

The Plan is designed to meet the Massachusetts Open Space & Recreation Plan requirements set forth by the Executive Office of Energy & Environmental Affairs, Division of Conservation Services, and will make the Town eligible for State LAND grants for open space acquisition, protection, or recreational facility improvements. The Plan is available to everyone on Harvard's website www.harvard.ma.us.

¹ Lautzenheiser, T.E., J.M. Collins, E.H. Ricci, and J. Clarke. *Losing Ground: Planning for Resilience*. Massachusetts Audubon Society, Inc. June, 2014.

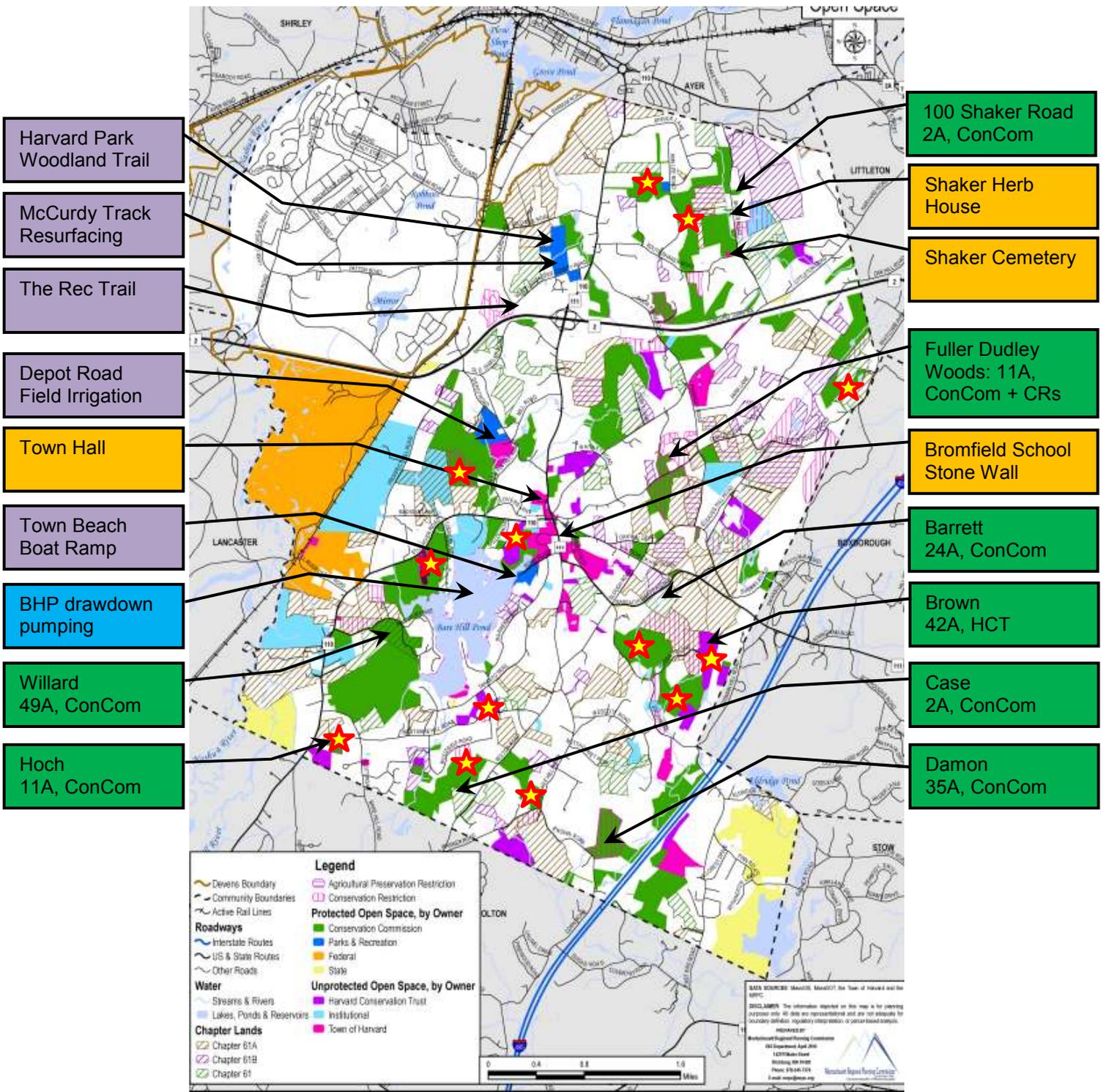
² Renski, H., Strate, S., et al. *Long-term Population Projections for Massachusetts Regions and Municipalities*. UMass Donahue Institute. March, 2015.

B. Accomplishments since the 2008 Plan

Since the 2008 Plan, notable accomplishments in protecting the Town's open space and providing recreation include:

<u>Project</u>	<u>Location</u>
<i>Bare Hill Pond Protection</i>	
Annual drawdown pumping	Bare Hill Pond
<i>Historic Preservation</i>	
Town Hall	Ayer Road
Shaker Herb House	Shaker Road
Bromfield School Stone Wall	Mass Ave
Shaker Cemetery Grave Markers	Shaker Road
Historic District Signage	Historic Districts
<i>Open Space Maintenance</i>	
Barba	Still River Road
Bare Hill Wildlife Sanctuary	Bolton Road
Black Pond/Vesenka	Littleton County Road
Brown	Murray Lane
Clapp-Scorgie-Tufts	Still River Road
Dean's Hill	Prospect Hill Road
Great Elms	Stow Road
Hermann Orchard	Ayer Road
May's	West Bare Hill Road
Abbot-Reed-Powell	East Bare Hill Road
William's	Stow Road
Hoch	Still River Road
Holy Hill	South Shaker Road
<i>Open Space Protection</i>	
Barrett (24.1 A)	Mass Avenue
Brown (42 A)	Murray Lane
Case (2.1 A)	Bolton Road
Damon (34.8 A)	Brown Road
Fuller Dudley Woods (11 A)	Old Littleton Road
Hoch (11.4 A)	Still River Road
Willard (48.5 A)	Willard Lane
100 Shaker Road (2.1 A)	Shaker Road
<i>Recreational Facilities</i>	
The Rec Trail	Depot / Lancaster County Road
McCurdy Track resurfacing	Lancaster County Road
Harvard Park Woodland Trail improvements	Lancaster County Road
New boat ramp at Town beach	Pond Road
Irrigation of Depot Road playing fields	Depot Road

In addition to these major projects, many resources – a large part of which were volunteers – have been expended on wetland education, trail maintenance and playing field preparation.



Recreational Facilities
Bare Hill Pond Protection
Historic Building Protection
Open Space Protection
★ Open Space Maintenance

Map 2.1 - Conservation & Recreation Accomplishments since 2008

C. Planning and Public Participation

The Harvard Open Space and Recreation Plan (OSRP) underwent a total rewrite in 2003. An update was completed in 2008 and approved by the State in 2010. The Conservation Commission began another update in 2015 as the prior plan was expiring.

In May of 2016, the Conservation Commission appointed an OSRP Working Group comprised of:

- Town Conservation Agent – Liz Allard
- Town Planner – Bill Scanlan
- Member at Large – Jessie Panek
- Bare Hill Pond Watershed Management Committee – Megan Glew, Steve Gordon, Brian McClain
- Conservation Commission – Jim Breslauer, Joanne Ward
- Community Preservation Committee – Joanne Ward
- Harvard Conservation Trust – Peter Dorward, Jim Lee, Lucy Wallace
- Nashua River Watershed Association – Lucy Wallace
- Park & Recreation Commission – Frank Culmone, Doug Thornton
- Planning Board – Erin McBee

The 2008 Plan was reviewed by the Town Conservation Agent to determine what information needed to be revised and updated. The major requirement identified was to obtain fresh public input, and to create new goals and a new 7 year action plan. For expediency and to reduce costs, the Conservation Commission elected to use an online survey to collect the public input. (The survey is attached in Appendix 2.) Paper copies of the survey were also made available from the Town Conservation Agent. The survey was advertised in the local newspaper, on the Town's website, through Nextdoor Harvard, Harvard's Cable Access and several list serves.

Survey responses were collected from May 6 to May 26, 2016, and 583 responses were received. The survey results, along with the goals and action plan derived from them, are contained in Sections 6 – 9. They were presented at public meetings of the Conservation Commission on June 2, 2016 and June 16, 2016, and at a public forum jointly held by the Conservation Commission and the Park and Recreation Commission on June 30, 2016.

Section 3: COMMUNITY SETTING

A. Regional Context

Harvard is located in North-Central Massachusetts. The Massachusetts Department of Environmental Management Landscape Inventory refers to this area as the Upper Nashua Valley-Shrewsbury Ridge Unit of the Massachusetts Central Upland. The Shrewsbury ridge runs from Littleton through Harvard to Shrewsbury and provides many excellent vistas of the surrounding countryside.

The region was long dominated by agriculture and Harvard remains a rural community. In recent decades, this region has become one of Massachusetts' prime growth areas for both housing and business. Interstate 495 runs east of Harvard and divides the Town in the southeast. Harvard is also divided by the east-west Route 2 corridor. Harvard's convenience to Boston and access to I-495 and Route 2 has brought significant suburban growth to the Town. The Cisco corporate park off I-495 in Boxborough is partially built out with approximately 600,000 square feet of floor area devoted to office and research and development uses. The complete project was scheduled to bring approximately 5,000 employees to the area. Two traffic lights were erected on Route 111 to better manage the anticipated increase in traffic, but to-date there have been few effects from the park on Harvard in either development impacts or in traffic problems.

Harvard's distinctive personality and the factors affecting the evolution of its character are discussed in a report on Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation³. The report states that a "key premise is that the experience of Harvard's rural character today is largely defined by four factors:

- Traditional settlement patterns of village centers contrasted with open farmland,
- The presence of active agriculture,
- The view from the road, and
- Historic resources."

A 2006 study, titled Harvard Reconnaissance Report⁴ and conducted in conjunction with the Massachusetts Department of Conservation and Recreation, asked residents to identify priority landscapes in the community. Participating Harvard residents "were emphatic that the character of their Town was defined by the whole Town, not by isolated areas", choosing to identify instead "a series of critical concerns related to heritage landscapes and community character". These concerns included the need to preserve Harvard's character as defined by the four factors listed above and added the additional factors listed below:

³ Berg, S.P., and C.W. Dempsey. 1997. Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation. Harvard Rural A Historic Landscape Committee

⁴ Mass. Department of Conservation and Recreation, Massachusetts Heritage Landscape Inventory Program: Harvard Reconnaissance Report, 2006.

- The moderation of light pollution at night, “including sky glow, glare, light trespass, light clutter, decreased visibility at night and energy waste”.
- The resolution of the future jurisdiction of Devens in the northwest corner of Harvard, that was formerly an Army base
- The linkage of open space parcels currently owned by a combination of the Town, the Harvard Conservation Trust and private and/or institutional organizations.
- The protection of specific trees “either for their physical characteristics, prominent location or historical associations” and certain species of trees in decline.
- The protection of Harvard’s waterways, including the Nashua River, Bowers Brook, Nonacoicus Brook, Bennett’s Brook and Bare Hill Pond.

Harvard lies at the headwaters of three major river basins. The central and western portion of Town drains into the Nashua River Watershed. A portion of the southeast corner of Harvard drains into the Assabet River, part of the Sudbury, Assabet, Concord River, or SuAsCo basin through Elizabeth Brook and unnamed tributaries of Great Brook in Bolton. In the northeast portion of town Bennett's Brook and Black Pond Brook drain into the Stony Brook Watershed, part of the Merrimack River watershed. Lying in the upper reaches of the watersheds, Harvard has no large rivers with extensive flood plains, but its many wetlands helps to moderate downstream flooding by absorbing heavy rains and delaying release of runoff to the valleys below.

Harvard is one of 45 communities in north central Massachusetts and southern New Hampshire that make up the Freedom’s Way National Heritage Area (FWNHA). Established by Congress in 2009, it seeks to foster a close working relationship with communities and state, national and regional partners to preserve the historic and cultural identity of the region. The goal of the FWNHA is to “...to fulfill the vision and mission conceived and expressed in its enabling legislation’s statement of purpose to manage preserve, protect and interpret the heritage areas cultural, historic, and natural resources for the educational and inspirational benefit of future generations.”⁵ The FWNHA is one of 49 Heritage Areas affiliated with the National Park Service.

⁵ Freedom’s Way Heritage Association, Inc., “Freedom’s Way National Heritage Area Management Plan”, June 2015, page 1.



Map 3.1 - Freedom's Way National Heritage Area

Freedom's Way partnered with the Massachusetts Department of Conservation and Recreation (DCR) to conduct feasibility studies and heritage landscape reconnaissance surveys in 22 communities. Harvard was one of those towns selected to conduct such a survey and followed up that effort by producing a pilot project for DCR to review the Town's Scenic Roads Bylaw and other related issues. That model project is now available as a guide for other communities. Also available on line at www.freedomsway.org is the Town of Harvard's history page that includes its Revolutionary War sites.

National Heritage Areas are about theme-related linkages that celebrate local, regional and national resources. The themes for the Freedom's Way Heritage Area are: Rediscovering the Native Landscape; Inventing the New England Landscape; and Shaping the Landscape of Democracy. Eventually, fully developed connections of trails, scenic roads, rivers, bikeways, historic walks and historic Paths of the Patriots will link the communities and celebrate their unique heritage.

Fruitlands Museums is another regional resource. Fruitlands is a not-for-profit museum with four museum buildings, several outdoor sites, a restaurant, and a museum store. The museum buildings include the Fruitlands Farmhouse, the Shaker museum, the Indian museum, and the Picture Gallery. The Museum owns over 200 acres, 150 of which are wooded, with panoramic views over the Nashua Valley. The Museum's collections and interpretive trails tell stories and explore evidence about New England cultures and their expression in the landscape. Fruitlands Museum is a National Register Historic District and the Fruitlands Farmhouse is National Register Historic Site. Fruitlands contains two miles of recreational trails adjacent to the Oxbow National Wildlife Refuge. In 2016, The Trustees of Reservations (TTOR) acquired Fruitlands and will integrate the Museum as one of its reservations. The acquisition provides stronger financial stability for the Museum to grow and prosper.

Regional connections through conservation and wildlife refuge lands include the Bowers Springs Conservation Land (Harvard and Bolton), Delaney Wildlife Management Area (Harvard, Bolton, Boxborough and Stow), Bolton Flats Wildlife Management Area (Lancaster, Bolton and Harvard), Oxbow National Wildlife Refuge (Harvard, Devens, Shirley and Ayer), as well as on-going efforts to link conservation lands in Harvard with Bolton and Littleton.

As a dues-paying member of the Montachusett Regional Planning Commission (MRPC), Harvard participates on the Commission in areas of common interest and needs, including transportation, economic development, and land use planning.

A portion of southwest Harvard, which includes the Oxbow National Wildlife Refuge, Bolton Flats Wildlife Management Area, Fruitlands Museums, and private lands, lies within the Central Nashua River Valley Area of Critical Environmental Concern (ACEC). A second ACEC, the Squannassit ACEC, also lies partly within Harvard and includes the portion of the Nashua River within Devens along the northwest border of Harvard. An ACEC is a formal designation made by the Secretary of Environmental Affairs to protect and preserve areas of environmental significance. This designation notifies regulatory agencies and the public that most development activities under State jurisdiction within ACEC's must meet high environmental quality standards. The ACEC's are displayed on Map 4.1.

Another regional connection is through the Nashua River Watershed Association (NRWA). The Nashua River flows along the western border of Harvard and the western border of the Devens portion of Harvard. The NRWA is an environmental non-profit organization that serves as an educator, advocate, and steward. The NRWA provides technical assistance to the 31 communities in north central Massachusetts and southern New Hampshire that comprise the watershed. Their main goals are: to restore and protect water quality for people, fish and wildlife; to conserve open spaces for water quality, wildlife habitat, farms, forests and recreation; and to encourage careful land use with well-planned development.

B. History of the Community

Native American Life

Long before the first European settlers arrived in the area that was to become Harvard, the Nashaway Indians found their way into the region, and lived off game from the forests, fish from the rivers and ponds, and berries and nuts from the native bushes and trees.

According to Henry Nourse in "History of the Town of Harvard", the Nashaways gained spiritual inspiration from the long vistas across the magnificent valleys and woodlands, with Mount Wachusett to the West, and the New Hampshire mountains to the Northwest.

It was the custom of these Native Americans to set fires in the late fall to burn off the grasslands and woodlands near their villages when the land was driest to encourage habitats for wildlife and berry growing. This practice kept the land open and ready to cultivate, and made it very attractive to the European settlers.



Map 3.2 – Harvard c. 1870⁶

Village Life

In 1642, the Nashaway Indians sold some of their land to traders from Watertown and Boston. Groton and Lancaster developed out of this land. In 1683, the Town of Stow was created out of the un-appropriated land between Groton and Lancaster, and Harvard grew out of these lands.

There were some large land holdings that were originally held by a few, but the average settler held a small parcel. Villages were established in three parts of town: Still River, Shaker Village, and the Town Center. Early inhabitants were robust, hardworking, and able to survive with few material advantages. Most were self-reliant farmers and their families, who cleared the land when needed, and grew their own food. They built their own houses, and wove the fabric for the clothes they wore. Life was hard and there were many early deaths, particularly among the numerous children that were born. Social life centered on church activities and group events, like barn raising.

Good relations with the Native Americans in the area eventually deteriorated, and there was always the fear of an Indian attack. Garrison houses were established for protection of the settlers. The Sprague house at the corner of Still River Road and West Bare Hill Road is an example of a garrison house. Wars between the Native Americans and the settlers broke out in the 1670s and atrocities were committed by both sides.

In 1730, villagers in the Bare Hill area filed an article at the Lancaster Town Meeting to create a new Town, Harvard. After two years of negotiations with Lancaster, Groton, and Stow, Harvard was incorporated. In 1732, there were 325 people in Town providing a sufficient number of families to support their own minister, and land petitioned as common land to build their own meetinghouse. A training field and a burying place, (where Town Center cemetery is currently laid out), were also established, as well as land for “other Public uses.”



⁶ Published by F. W. Beers & Co.

Cattle Pound and Powder House - Town Common

Industry

Throughout the Town's history, there have been numerous short-lived, small industries. The slate of Pin Hill was quarried until the 1880's. There are records of potash works, cider and vinegar manufacturing, tanneries, and brick making. A number of mills were built over the years, including sawmills, gristmills, a fulling mill (a process for cleansing, shrinking, and thickening cloth by moisture, heat, and pressure), and a trip hammer mill. In several places, especially along Bowers Brook, the foundation stones and other remains of these mills may still be seen.

In 1848, the railroad came to Harvard. Depots were located in Still River and northwest of the Town Center at what is now called Depot Road. The railroad made it easier to ship goods. The New England Brick Company, the Union Paving Company, Haskell's Vinegar Works, and the Watt Dairy Farm produced goods in Harvard and shipped them by rail.

Agriculture

Agriculture was the major livelihood for the Town throughout the eighteenth and nineteenth centuries. Throughout its history, Harvard farms have produced hay, grains, and a wide variety of vegetables. Dairies were an important industry, especially after the railroad came to Town. By the mid-1800s, dairying, cattle, and swine accounted for approximately 25% of the total value of agricultural goods. Orchards existed in the Town's early years but did not become large businesses until the late 19th and early 20th centuries. By 1940, Harvard was the Commonwealth's chief producer of apples.



Carlson's Orchard – Oak Hill Road
(Courtesy of Carlson's Orchard)

Communities within the Community

One of Harvard's unique characteristics is the number of religious and sociological experiments that have taken place here. One notable group is the Shakers. They established a community of worshippers and practitioners that flourished from the 1790's to 1919. At its largest, the Harvard Society of Shakers numbered about 200. They owned hundreds of acres of land, and lived communally as a self-contained community, almost independent of the Town. The land they acquired was considered some of the worst for farming, but the industrious Shakers rerouted watercourses and improved the soil until they could subsist through agriculture. They eventually manufactured simple goods to sell in the outside world. Their product lines included brooms, bottled herbs, applesauce, and packaged garden seeds.

In 1843, a group of Transcendentalists conceived of a communal agricultural experiment that they named Fruitlands. Bronson Alcott, a friend of Ralph Waldo Emerson and Henry David Thoreau, and father of Louisa May Alcott of Little Women fame, led the group. The group intended to become self-sufficient vegetarians who would not use animals at all, even to plow their fields. They purchased a farm overlooking the Nashua River Valley at Prospect Hill. Starting with ten people, including children, the group worked for the summer. They were, however, unable to provide themselves with enough food and supplies to survive the winter, and so ended the experiment.

In the early 1900s, Fiske Warren, a wealthy Bostonian, and follower of Henry George's single tax plan, bought large amounts of land in Town. By 1909, Warren was ready to test the single tax plan in Harvard. He established an enclave called Tahanto, which eventually consisted of a group of trustees, and 50 leaseholders on 748 acres. Leases were for 99 years, and enclave members shared expenses for farming and maintenance, and communally made decisions about the land. The leaseholders paid an annual fee to the trustees, and the trustees paid a single tax on the land as a whole to the Town. The leaseholder could make improvements or construct buildings on the land, and could sell these for their own profit, but they did not own the land. Any increase in value to the land itself went to the enclave. Warren believed that the single tax system would prevent greedy landowners from exploiting the common man. A second enclave called Shakerton was started in 1921 on land that Warren had purchased from the Shakers when their community dissolved. In *A Guide to Nashaway North Central Massachusetts*, authors Marge Darby, Jean McCrosky, and Mildred Chandler say that Fiske Warren at one time owned almost one-third of the land in Harvard. College professors and various professionals leased much of the land for summer residences. Warren's single tax plan theories were never proven, and when he died in 1938, his dreams died with him. His heirs inherited the land, and most of it has been sold.

In 1917 the United States Army established Camp Devens as a temporary Army base. By 1931 over 2,270 acres had been acquired for use as a permanent post, Fort Devens. The surrounding Towns of Lancaster, Ayer, and Shirley also had land taken for this purpose, making the total area of the base approximately 9,289 acres. By the beginning of World War II, the Fort was being used as the reception center for all New England draftees. The population of the Fort had a major impact on the Towns for over 75 years, until its official closing in 1995.

In 1993 the Massachusetts Legislature created the Devens Regional Enterprise Zone (DREZ) (Chapter 498 of the Acts of 1993) now called Devens. In 1994, Harvard, Lancaster, Ayer and Shirley ceded jurisdiction to the Commonwealth for the Devens land within their boundaries. In 1998, a State agency, MassDevelopment, was created, which merged previous governing boards. MassDevelopment has responsibility for the developing the north and main posts for commercial, recreational and residential use. Section 23 of Chapter 498 requires that the Towns, MassDevelopment and the Devens Enterprise Commission (DEC) work to establish a plan for permanent governance of Devens, with a report to the Governor required "on or before July 1, 2033.

The St. Benedict Centers and Abbey are another distinctive group in the more recent and current history of Harvard. In 1949, Father Leonard Feeny was dismissed from his Jesuit order for his beliefs, and eventually censured from the Roman Catholic Church. In 1958, he and a group of followers established their religious community in Still River, in a beautiful setting overlooking the Nashua River valley with Mt. Wachusett in the distance. Over the years, the group has operated a monastery, convent, school, farm, bakery, religious articles store, and publishing company on over 175 acres of land. At times, they have divided over issues into as many as six legally independent communities. Three currently remain in Harvard. They are the St. Benedict Abbey, the Sisters of St. Benedict, and the Slaves of the Immaculate Heart of Mary. Reconciliation with Rome occurred in 1987 for the Sisters of St. Benedict, in 1993 for St. Benedict Priory when the Abbey was formed, and in 2002 for the Slaves of the Immaculate Heart of Mary. The three factions are legally independent from each other and are independent landowners. Currently, their land is used for growing hay, for a schoolyard, and for places of quiet contemplation and meditation.

Post War Growth

A large growth spurt began when Route 2 opened in 1950 and it continued when I-495 followed in the 1960s; both roads pass through the Town. Between 1945 and 2002, many subdivisions developed in Harvard during this period, particularly in north Harvard. Harvard's population quintupled. Since 2002 the Town population has been more stable. Population growth and demand for property generated by the high performance of the still independent school system has prompted large increases in land values. Although there have been years when values have dropped, prices for housing and for undeveloped land have grown significantly in the last twenty years. Changes in shared revenue from the State, combined with higher demands on the educational system have produced substantial tax increases. High land values and constant development pressure, along with increased agricultural competition from other states and countries, is putting pressure on farm and orchard owners, as well as long-term residents to sell their land.

C. Population Characteristics⁷

Population and Household Trends

Harvard is home to about 5,000 people and 1,800 households. Table 3.1 shows that from 1930 to 2000, population growth in Harvard (excluding Devens) consistently outpaced that of Central Massachusetts; however, this trend was reversed over the previous decade (2000-2010), as the Town's population dropped slightly while the County as a whole grew by over 6%. Harvard is not alone. Many of the state's developing suburbs that grew quickly for several decades have also experienced a significant slowdown in population growth since 2000. Many of the state's more affluent communities have also seen their populations decline as a result of shrinking household size and limited new construction.

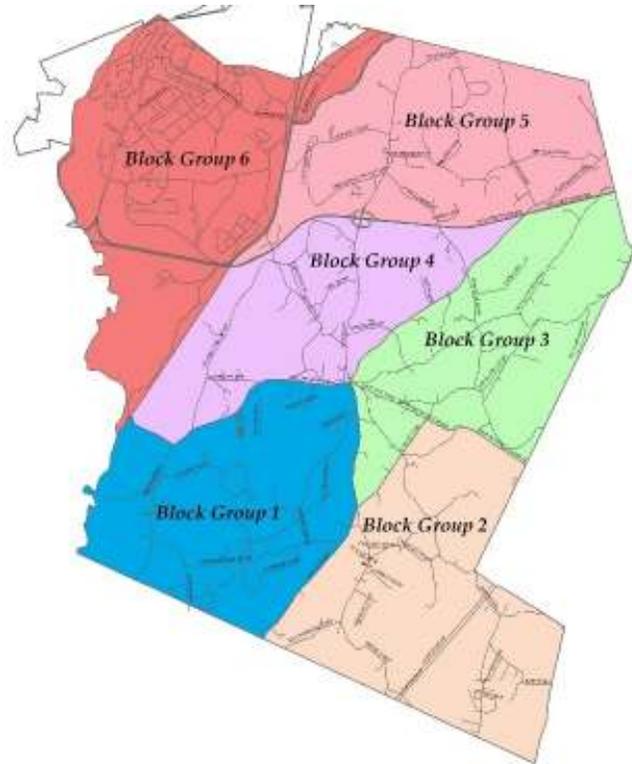
Table 3.1 - Population Change in Harvard, 1930-2010

Year	Local Population (Without Devens)	Percent Change	Worcester County Population	Percent Change
1930	987		490,737	
1940	1,119	13.4%	504,470	2.8%
1950	1,315	17.5%	546,401	8.3%
1960	1,840	39.9%	583,228	6.7%
1970	2,962	61.0%	638,114	9.4%
1980	3,744	26.4%	646,352	1.3%
1990	4,662	24.5%	709,705	9.8%
2000	5,230	12.2%	750,963	5.8%
2010	5,063	-3.2%	798,552	6.3%
Source: Harvard Master Plan 2002, Table 2.6; Census 2010, and RKG Associates, Inc.				

In the 2010 Census, Devens had a population of 1,457 people, of which 1,238 lived in group quarters and 219 lived in households. When Devens is included in the Town's demographic data, Harvard experienced a slight population gain (1.8%). Devens has a federal prison (primarily a federal medical center), and the Census Bureau includes all 1,194 inmates in Harvard's total population count.

⁷ Much of the following information is from the Harvard Master Plan, 2016.

In 2000, Harvard consisted of two census tracts, but with the loss of military personnel at Fort Devens, the Census Bureau combined the two tracts into one with six block groups, one of which (block group 6) includes Harvard's land at Devens (Map 3.3). This reunification for census purposes provides a more complete picture of the Town's residents but makes it harder to compare current conditions with those reported in previous plans and studies.



Map 3.3 - Census Block Groups

Race

Harvard is relatively homogenous in terms of race. There are 126 minority households in Harvard, including 12 living at Devens. Most are Asian families. By contrast, the Town has only 11 African American families. Of the 264 African American people living in Harvard today, 244 reside at Devens and 230 are inmates at the federal prison. The residential population remains mostly white, non-Hispanic, as it was in 2000. In 2010, Harvard had 264 Hispanic individuals. Most of the Hispanics (166) lived in Devens.

Population Density

Except for small pockets of compact development in the historic villages, Harvard's density is low. At 206 people per sq. mi., its density is much lower than that of adjacent towns, with only Bolton approximating Harvard. By contrast, the population density of Ayer is 832 people per sq. mi. and Boxborough, a town with similar rural-residential characteristics, has 486 people per sq. mi. Harvard's low density is a result of its scarcity of water and sewer infrastructure and 1.5-acre minimum lot size throughout town. In the Town Center, which developed prior to the adoption of zoning and now has water and sewer systems, the median lot size of single family homes, is ½ acre.

Table 3.2 - Population Density (2010)

Location	Population	Land Area (sq. mi.)	Population Density (per sq. mi.)
HARVARD			
Harvard without Devens	5,063	24.6	205.8
Total (including Devens*)	6,520	26.4	246.6
Ayer	7,427	8.9	832.2
Bolton	4,897	20.0	245.4
Boxborough	4,996	19.3	485.7
Lancaster	8,055	27.5	293.3
Littleton	8,924	16.5	540.1
Shirley	7,211	15.9	454.8
Stow	6,590	17.3	380.6
Source: U.S. Census, Census 2010.			
*Devens population includes federal prison inmates.			

Population Age

Harvard’s demographic profile has long differed from that of the Commonwealth and region in terms of distribution by age. School-age children have traditionally made up larger shares of Harvard’s population, and this remains true today. However, school enrollments have begun to fall because the youngest age cohort – children under 5 years – was already shrinking when the 2010 federal census occurred. As shown in Table 3.3, in 1980 5.9% of the population was under 5 years; by 2010, it dropped to 3.4%. A contributing factor is the decline in the young adult population (ages 25-34), which decreased from 15.4% in 1980 to just 3.6% in 2010. This is perhaps due to the high cost of housing in Harvard, which puts the Town beyond the reach of young, newly formed households. Adults in the 35-54 age cohort make up almost 1/3 of the population, attracted in part by Harvard’s excellent schools.

As the number of householders of child rearing age has decreased, the number of “Baby Boom” empty nesters and retirees have increased in Harvard over the previous ten years. Those 65 and over comprised 12.7% of Harvard households in 2010, up from 5.6% in 1980. The leading edge of Boomers, those born in 1946, turned 65 in 2011. Data from the 2020 Census will undoubtedly show the growth in the 65+ population continuing as residents age in place and new housing starts remain low. The 2010 Census had Harvard’s 55-64 age cohort at 18.8%, which is over 6% greater than the statewide percentage (12.3%).

Table 3.3 - Population by Age in Harvard

Age Cohort	1980		1990		2000		2010	
	Harvard	State	Harvard	State	Harvard	State	Harvard	State
<5	5.9%	5.6%	6.5%	6.9%	6.5%	6.3%	3.4%	5.6%
5 to 14	19.5%	14.2%	15.6%	12.1%	19.0%	13.6%	17.6%	12.1%
15-19	9.5%	9.4%	7.2%	6.8%	6.4%	6.5%	8.4%	7.1%
20-24	4.2%	16.2%	4.5%	8.5%	2.0%	6.4%	2.9%	7.3%
25-34	15.4%	16.3%	9.5%	18.3%	5.8%	14.6%	3.6%	12.9%
35-54	34.1%	21.2%	41.6%	25.2%	39.7%	30.5%	32.6%	29.0%
55-64	5.6%	10.6%	8.0%	8.6%	12.2%	8.6%	18.8%	12.3%
65+	5.6%	13.2%	7.0%	13.6%	8.5%	13.5%	12.7%	13.8%
Sources: Harvard Master Plan, Table 2.8; Census 2010, and RKG Associates, Inc.								

Disability

Approximately 6.4% of Harvard's population (about 350 people) has some type of disability: a long-lasting physical, mental, or emotional condition that severely limits activities such as walking, dressing, bathing, learning, or remembering. A disability can make it very difficult or impossible for people to leave their home alone or go to work. In Harvard, seniors make up about 40 percent of the total disability population.

Commuting Patterns

Table 3.4 shows the modes of travel to work for Harvard residents and changes that have occurred since the 2000 Census. The proportion of workers who drove alone has decreased but still accounts for the vast majority of commute trips. Meanwhile, the proportion of residents who work at home increased to about 14 percent of all workers. This is fairly common among communities with a labor force of professionals whose occupations have benefited from the rapid evolution of information technology. For those who commute to work, residents are dependent upon automobiles as the lack of public transit service and low employment base make alternative modes of travel impractical for most.

Table 3.4 – Commute to Work (2000-2012)

	Total	Percent	Change from 2000
Workers 16 years or older	2,503	100%	-9.0%
Drove alone	1,932	77.2%	-6.9%
Carpooled	103	4.1%	0.0%
Public transportation	41	1.6%	-1.6%
Walked	37	1.5%	+0.3%
Other means	34	1.4%	+0.2%
Worked at home	356	14.2%	+7.9%
Mean travel time to work	32 minutes	n/a	no change
Source: U.S. 2000 Census and American Community Survey 5-Year Estimates (2008-2012). Note: data reported here include residents of Harvard and Devens.			

Environmental Justice Populations

There are no Environmental Justice populations in Harvard.

Income and Poverty

Harvard has evolved from a rural-agricultural enclave to a prestigious, low-density suburb within the orbit of the Boston and Worcester metro areas. Not surprisingly, the economic position of Harvard households is higher than that of households in most Worcester County towns. Overall, Harvard residents have higher levels of educational attainment and better-paying jobs, and they are more likely to have more wage earners, too. Table 3.5 presents a set of standard wealth indicators for Harvard, Worcester County, and the state. Harvard remains a town with high household income and high housing values even after the recent recession. Despite this affluence, a number of residents live in poverty (earning less than \$11,770 for a single individual, \$20,090 for a family of three in 2015). The most recent data from the U.S. Census Bureau estimate that 95 Harvard families (6.2%) lived below the federal poverty threshold in 2014, and most of these (63) owned their homes. Of the 499 residents living in poverty, 209 were children under the age of 18; only 39 were 65 or older.⁸

Table 3.5 - Comparative Economic Indicators

Indicator	Harvard in 2014		
	Harvard	Worcester County	State
Median Family Income	\$150,859	\$82,736	\$86,132
Per Capita Income	\$50,853	\$32,072	\$36,441
Median Home Value	\$552,300	\$255,600	\$329,900
% Population with College Education or Higher	62.5%	31.4%	40.0%
% Management, Business Science and Arts Employment	64.9%	40.7%	43.9%

Employment Base

Harvard’s employment base is small and not very diverse. According to available employment and wage data, Harvard’s 245 employer establishments (excluding companies at Devens) are mainly service-providing industries that provide jobs to about 1,000 wage and salary workers.⁹ An employer establishment is an entity with wage or

⁸ U.S. Census; ACS 2010-2014, 5 Year Estimates There is a high incidence of poverty (36.2%) among residents – all male - living in “other living arrangements,” most likely the supportive (transitional) housing for veterans at Devens.

⁹ Business statistics for Harvard are presumed to exclude the businesses located at Devens. The employment base data cited in this section are tied to zip codes, so the number of businesses and employees should be Harvard-specific. However, it is important to note that even when controlling for zip codes, the number of businesses and jobs reported for Harvard varies by year, season, and source. For example, government sources placed the number of businesses in Harvard at 169 and the number of jobs at 950 for calendar year 2012. The higher estimates used in this plan probably include some self-employed business owners that are not included in government economic reports.

salary employees. It excludes self-employed individuals (sole proprietors) and some employers that are exempt from paying unemployment compensation insurance. As a result, economic statistics from public and private sources do not always provide a good picture of how residents support themselves in small towns like Harvard. Organizations that report employment in cities and towns (including self-employed people and exempt establishments) estimate that Harvard has about 420 businesses, most of which are micro-businesses, e.g., people working part-time out of a home office and a variety of self-employed personal service establishments. These types of employment provide income for the individual doing the work, but labor economists exclude them from the local employment base because they do not provide job opportunities in the labor market.

The vast majority of Harvard's non-farm employment is supplied by establishments in the professional or technical services, education and health care, and personal services sectors. While the number of such establishments may be high, they may not necessarily provide many jobs.

Since published employment statistics do not include self-employed individuals, the data tends to under-count the actual level of employment in Harvard. With high educational attainment, many Harvard residents perform professional services in a home office setting and are able to earn incomes that support the high cost of housing. If a business thrives, the proprietor may create new jobs and seek space in one of Harvard's professional office buildings.

Location Quotients

The make-up of Harvard's employment base differs significantly from that of its closest economic region, Worcester County, and even more from the make-up of the Boston Metro employment base. The most useful way to analyze a city or town employment base is to compare it with a larger reference economy, such as a county or metro area, a labor market area, or a state. By determining the percentage of local jobs by industry sector and dividing it by the percentage of the same sector's jobs in the reference economy, one can see relative strengths and weaknesses in or specialized aspects of a community's employment base.

The resulting ratio is known as a location quotient. A location quotient of 1.00 means that an industry provides the same share of jobs in the locality as in the region. By contrast, a location quotient of 1.10 or more indicates that an industry is stronger locally than regionally, and a location quotient of less than .90 indicates an industry that is stronger regionally than locally. Sometimes a very high quotient can be problematic, e.g., the "one-company town" problem that toppled small industrial centers during the Great Depression in the 1930s, but it also can point to an economic niche.

Table 3.6 compares employment in Harvard and Worcester County by sector. It shows that agriculture, with a location quotient of 16.658, provides over 16 times as many jobs in Harvard as in the reference economy, Worcester County. Clearly, Harvard's orchards are a significant part of the Town's economy even though the actual number of jobs is small. In contrast, Harvard's manufacturing location of .261 shows a relatively weak employment in manufacturing compared to Worcester County. Other sectors that show employment strength in Harvard (i.e. a location quotient greater than 1.1) are real estate sales and leasing (6.374), information (3.556), arts and recreation (2.487), professional, scientific,

and technical services (2.483), public administration (2.221), personal services (1.754), wholesale trade (1.553), and construction (1.412).

Table 3.6 - Location Quotients for Harvard Employment Base

	Harvard Jobs	Percent	Worcester County Jobs	Percent	Location Quotient
Agriculture, Forestry, Fishing and Hunting	31	2.2%	310	0.1%	16.658
Real Estate and Rental and Leasing	59	4.2%	1,542	0.7%	6.374
Information	86	6.1%	4,029	1.7%	3.556
Arts, Entertainment, and Recreation	58	4.1%	3,885	1.7%	2.487
Professional, Scientific, Technical Services	171	12.1%	11,471	4.9%	2.483
Public Administration	112	7.9%	8,399	3.6%	2.221
Other Services (Personal Services)	79	5.6%	7,504	3.2%	1.754
Wholesale Trade	89	6.3%	9,547	4.1%	1.553
Construction	77	5.5%	9,087	3.9%	1.412
Educational Services	184	13.1%	29,131	12.4%	1.052
Retail Trade	133	9.4%	26,691	11.4%	0.830
Accommodation and Food Services	69	4.9%	17,386	7.4%	0.661
Healthcare and Social Assistance	163	11.6%	48,635	20.7%	0.558
Transportation and Warehousing	29	2.1%	9,169	3.9%	0.527
Finance and Insurance	32	2.3%	11,539	4.9%	0.462
Manufacturing	34	2.4%	21,697	9.2%	0.261
Management of Companies & Enterprises	3	0.2%	2,825	1.2%	0.177
Mining	0	0.0%	130	0.1%	0.000
Utilities	0	0.0%	1,442	0.6%	0.000
Administration and Waste Services	0	0.0%	10,296	4.4%	0.000

Sources: Executive Office of Labor and Workforce Development, ES-202, and Nielsen Claritas Site Reports (2014). Note that Harvard may have some employment in industries reported as "0." Very small numbers of jobs are often unreported by government and proprietary sources for confidentiality reasons.

D. Growth and Development Patterns

Patterns and Trends

Central Massachusetts' typical pattern of development was that of compact villages organized around 19th century mills, which were then surrounded by farms in outlying areas. Harvard too followed this development model. When, in the middle of the 20th century, farming became uneconomical, many farms were abandoned. The Town slowly became a low density residential community for people working elsewhere. Its lack of infrastructure and creative zoning helped the Town to retain much of its rural character. This trend accelerated with the enlargement of State Highway 2 and the building of I-495. Although retaining several large apple orchards and a few farms, the Town is today primarily a residential community.

Harvard's land use pattern still contains fields, orchards, forests, and wetlands, but over time housing and to a lesser extent, commercial and institutional structures have been built on once-vacant land.¹⁰ Single-family homes on large lots are the predominant type of housing found in Harvard. Where other housing types exist, they tend to occur in the villages that developed organically, prior to the adoption of zoning, and mixed-income housing developments approved under Chapter 40B. Harvard has impressive and treasured view sheds with expansive open space, forested hills, wetlands, and scattered homes. However, the number of homes that dot the landscape increases every decade and in all corners of town. Efforts to protect open space through conservation restrictions and land acquisitions have helped to preserve quite a bit of land in Harvard, owing to the efforts of Harvard's Conservation Commission, the Harvard Conservation Trust, and others. Still, many parcels in town, including large farms, could still be developed.

Infrastructure

The Town of Harvard is served directly by I-495, and Routes 2, 110, and 111. Highway travel is the primary method that most residents use for commuting and shopping. Many residents avail themselves of the MBTA's commuter rail Fitchburg-Boston line, with stations in Ayer, Littleton-I-495, and South Acton.

Pedestrian Choices

There are very limited sidewalks within Harvard, and roadway shoulders in many cases are constrained and not adequate for pedestrians. Due to the dispersed nature of development and inadequate pedestrian facilities, walking on roads in Harvard is difficult. However, recent Master Plan surveys revealed that there is a desire for a more walkable Harvard. When asked if Harvard should make pedestrian and bicycle safety improvements in the Town Center, 74 percent of respondents agreed compared with 15 percent that disagreed.

¹⁰ Based on land coverage figures from MassGIS Land Use, 2005.

The Town Center, which features many civic buildings, churches, and schools, provides an opportunity to create a more walkable downtown. Currently the layout of these buildings and their parking generally impede pedestrian travel between buildings, since they are spaced too far apart to make walking realistic. The pedestrian paths are lacking, poorly defined, or otherwise uninviting. The long distances and the lack of an adequate pedestrian environment impede pedestrian travel. The Town Center Transportation Study in 2016 developed a comprehensive plan to enhance pedestrian routes to make the Center a more walkable environment.

In its rather large holdings of federal, state and local conservation land, numerous hiking trails provide opportunities for residents to enjoy Harvard's outdoor resources. In 2013 MRPC created an inventory of trails in Harvard. Including Devens there are about 70 miles of trails in the inventory. As the Town acquires additional conservation lands over time, the Town should seize opportunities to develop new trails that will connect sites to create longer distance trails and provide links to villages and points of interest in town. It may eventually be possible to create a circumferential trail around Harvard with spokes radiating to popular destinations.

Another area in need of pedestrian improvements is the Commercial District along Ayer Road. Sidewalks are non-existent in most locations, and few visitors are willing to risk the hazard of walking along the highway with high traffic volumes and fast speeds. New development guidelines call for connecting properties via paths and sidewalks to make the area more pedestrian-friendly. Connecting paths to pedestrian destinations, such as Dunkin Donuts and McCurdy Track, should alleviate safety concerns of walkers and bicyclists, especially children.

Bicycling Choices

As is the case for pedestrian facilities, most of Harvard's rural roads do not adequately accommodate bicyclists due to constrained shoulder widths. Harvard's scenic and hilly roads are a destination for bicyclists from Harvard and the surrounding area. There is little signage for bicycle routes or for bicycle safety, and the narrow, winding, scenic roads, while enjoyable for bicyclists, create conflicts with motorists. While there is limited local demand for off-road bicycle facilities, opportunities to more safely accommodate visiting bicyclists on existing roads could be explored, perhaps by improving shoulders to allow vehicles to pass cyclists safely.

When the Army established Fort Devens during WWI, it closed the vehicular connections to Harvard, and they remain closed to this day. The viability of a bikeway between Harvard and Devens could be investigated, regardless of Devens' disposition. This bikeway could make a convenient commuting link for the 4,000 employees currently working at Devens. In addition, it would provide a recreation amenity and create better access for Harvard and Devens residents to participate more fully in each other's civic affairs. State and federal funding is frequently available for such projects due to transportation and recreation benefits.

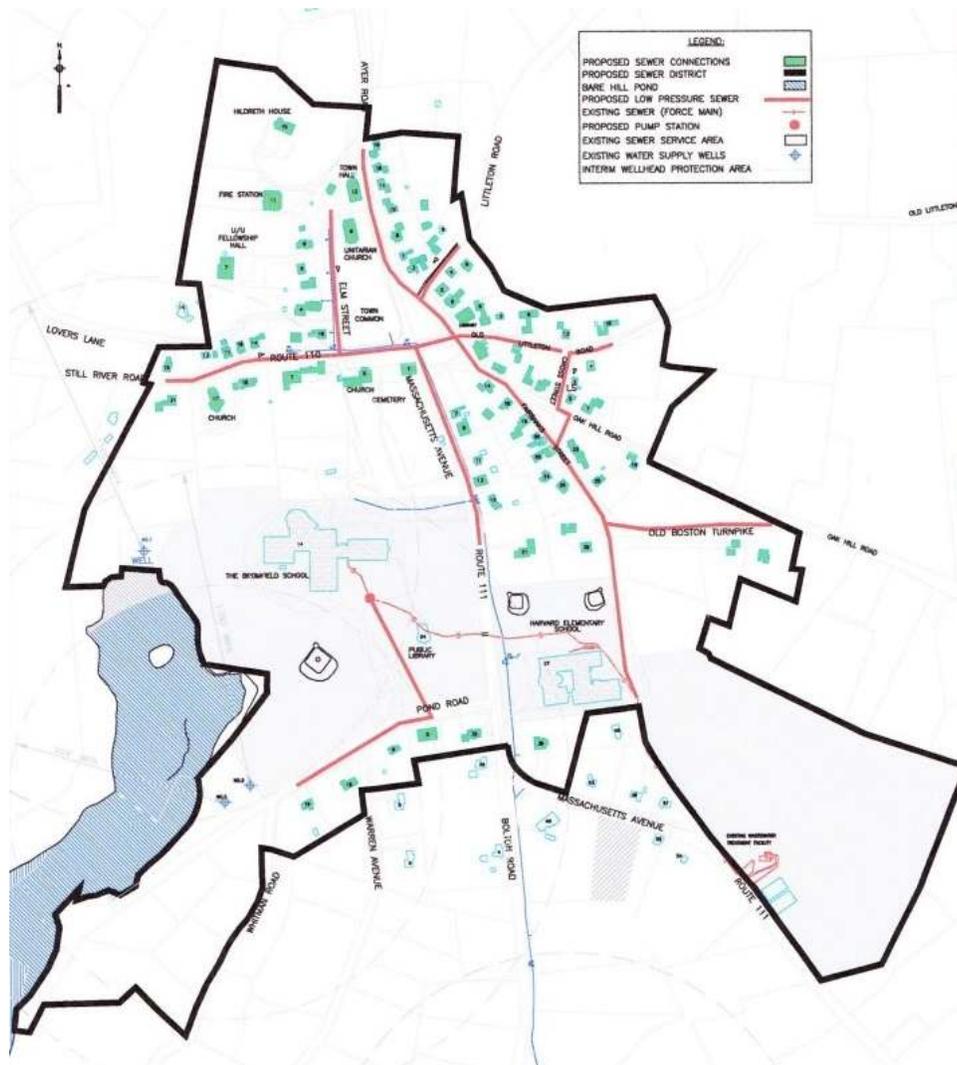
Town Water Supply

The Water Department provides drinking water to a small service area of about eighty properties within the Town Center. Water is pumped from two bedrock wells located east of Bare Hill Pond, both drilled to a depth of approximately 500 feet, and delivered to customers through a 13-mile network of recently upgraded water mains. A third well on Bolton Road is available for emergency backup, but it is rarely used, and activating it requires MassDEP approval. Since the actual aquifer recharge area for these wells has not been identified, MassDEP has assigned an Interim Wellhead Protection Area (IWPA) to each well, which varies with the well's pumping rate. The Town pumps approximately 7 million gallons per year from the two wells combined. MassDEP considers both water supplies to be at moderate or high risk of contamination due to their proximity to underground fuel tanks, storage of hazardous materials, lawns, and septic systems. The water system is regulated by an appointed Water and Sewer Commissions, which has authority to set water rates for customers in the Town Center.

Town Sewer System

The Water and Sewer Commissions also oversees a new sewer district that Harvard established with approval from the state Legislature under Chapter 37 of the Acts of 2010. The district closely mirrors the water district and includes portions of Ayer Road, Massachusetts Avenue, Elm Street, Pond Street, Still River Road, and Fairbank Street in the Town Center. Its service area is limited to 12 nonresidential properties, 43 multifamily dwelling units, 38 single-family homes, and 8 public buildings.

The sewer system has an excess capacity of approximately 3,000 gallons per day. Its intent was primarily to provide existing uses in the Town Center with reliable treatment and to remove failing septic systems that posed a threat to the municipal wells. Practically speaking, the system will not allow a significant increase in residential density or promote new commercial growth. One possible use of the remaining capacity is to provide treatment for a proposed senior housing project at the Hildreth House property, which hosts the Senior Center.



Map 3.4 – Harvard Common Sewer District

Long Term Development Pattern

Harvard's first rudimentary Protective (Zoning) Bylaw was passed at Town Meeting in 1951. In 1970, the Town published its first Master Plan, and its findings and recommendations provided the necessary direction to guide the growth and development of the Town. At that time, a questionnaire was distributed to the inhabitants, who replied emphatically that they wished to keep the rural aspect of the Town. They expressed a strong preference for the conservation of wetlands and other open spaces, a preference for large building lots. They wished that the Town not court commercial development and the resulting traffic, nor did they wish to become a densely settled bedroom community. Subsequent questionnaires have affirmed these positions. Town zoning keeps commercial uses separate from residential and agricultural uses. Industry is no longer permitted.

Over the past ten years, Harvard has added 69 single-family homes, 77 condominiums, and 42 senior apartments to its total housing supply.¹¹ The fact that multi-family condominiums and rental units surpassed the production of single-family homes is not indicative of a long-term trend, for many towns that experienced a shift in demand toward multi-unit dwellings and smaller housing units a decade ago and have since witnessed a reversion to single-family home development. Most multi-family housing in Harvard has developed via the comprehensive permit process, which is why the new condominiums and apartments include low- or moderate-income units. They provide an additional public benefit as well: on average, Harvard's multi-family units occupy just 0.38 acres per unit, compared with the 3.7 acres per unit for single-family homes. Nevertheless, it is worth noting that two-thirds of Harvard's affordable housing units (built with comprehensive permits) are located off Ayer Road north of Route 2, largely but not entirely in areas the Town has zoned for commercial uses.

Table 3.7 shows the change in residential land use between 2002 and 2012 based upon Assessors land use codes. Overall, Harvard grew slowly as the amount of land in residential use increased by 123.5 acres. The largest amount of growth occurred in condominiums; no condominiums existed in 2002, but by 2012 144 acres were in this category. The market responded to a demand for alternatives to detached single family homes, and developments such as Harvard Green and Harvard Common utilized the comprehensive permit process to gain entry into the Town. Condominium growth out-paced single family home constructions, which gained 67.3 acres during this 10-year stretch. Map 3.4, from the Harvard Master Plan, shows parcel-based land use in 2015.

¹¹ Massachusetts Department of Revenue, Division of Local Services (DLS), Municipal Data Bank, "Parcels by Use Class," and Department of Housing and Community Development (DHCD), Chapter 40B Subsidized Housing Inventory.

Table 3.7 - Change in Residential Land Use in Acres

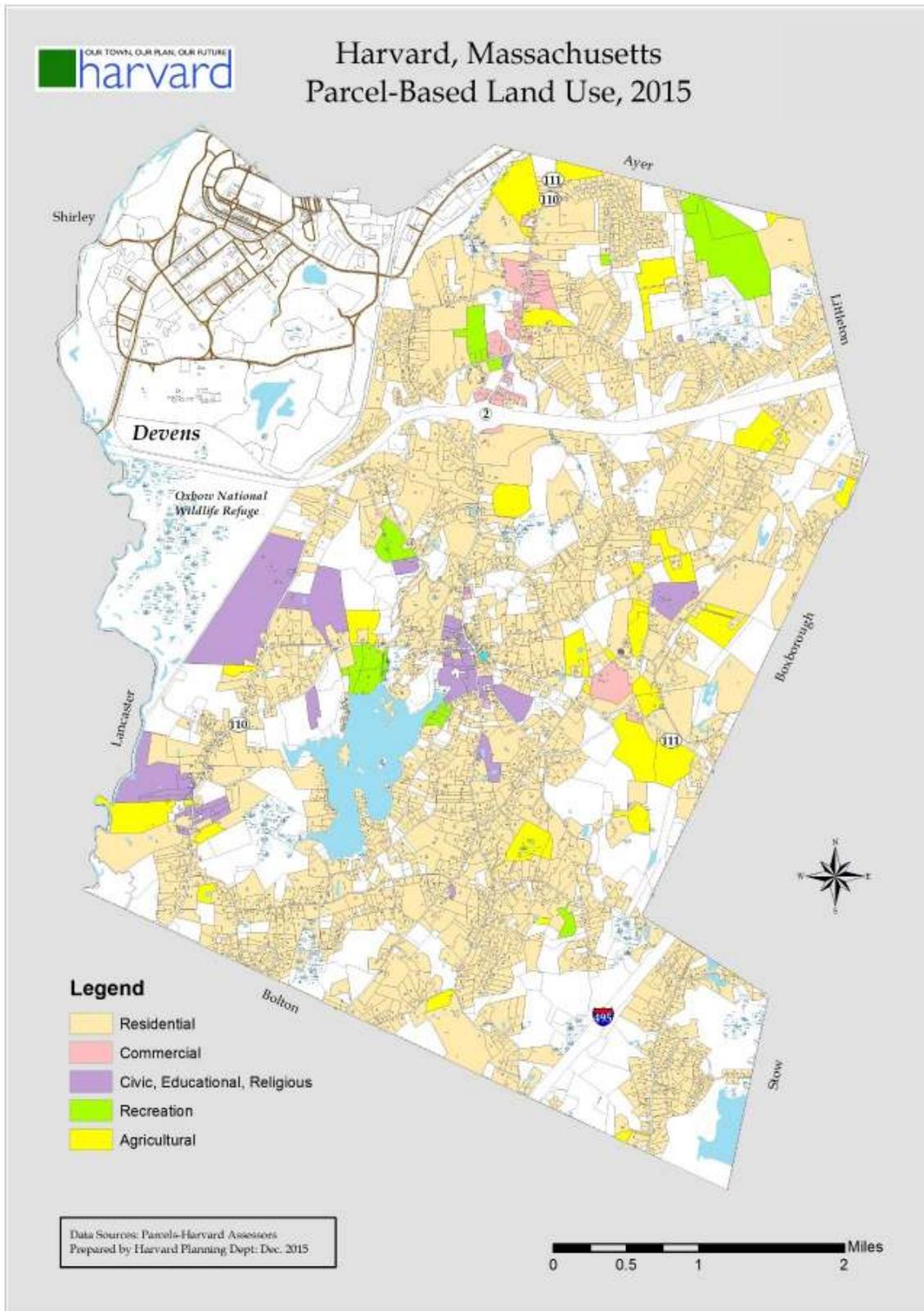
Use Type	In 2002	In 2012	Change
Detached Single Family	4,898.7	4,965.0	67.3
Multi-Family	128.2	102.8	-25.4
Apartments	3.2	6.7	3.5
Condominiums	N/R	114.0	114.0
Multiple Residence	213.5	190.6	-22.9
Mixed Residential-Commercial	27.3	14.3	-13.0
Total	5,269.9	5,393.4	123.5
Sources: Harvard Master Plan (2002), 2.7; Assessor's Parcel Database, 2012, MassGIS; and RKG Associates, Inc.			

Harvard's first Zoning Bylaw in 1951 established one district for the entire town. Separate use districts followed in 1965, including Agricultural/Residential (AR), Business (B), Commercial (C), and Industrial (I). Like many environmentally conscious towns, Harvard established a Watershed Protection (W) District in 1968, a few years before the state passed the Wetlands Protection Act (WPA). In 1972, the Town adopted commercial use regulations and abolished the industrial zone. The only practical ways to develop multi-family housing in Harvard are with a Chapter 40B comprehensive permit and in a mixed use development approved with an Ayer Road Village Special Permit (ARVSP). Bowers Brook, a 42-unit senior apartment complex on Ayer Road, took advantage of the ARVSP process. Map A.1 shows the existing zoning districts in Harvard today (2016).

Table 3.8 - Zoning Districts by Area

District	Acres	Percent
Agricultural Residential	11,753	81.7%
Business	3	.02%
Commercial	346	2.4%
Watershed Protection and Floodplain	2,275	15.8%
Acres subject to Harvard Zoning	14,378	100%
Acres in Harvard subject to Devens Reuse Plan	2,600	
Source: Town of Harvard, GIS zoning map		

Harvard, Massachusetts Parcel-Based Land Use, 2015



Map 3.5 – Parcel Based Land Use, 2015

In recent years, development has largely been a matter of construction of single family homes on individual lots. Harvard has not had a subdivision in many years. Harvard's zoning does allow for backland lots, i.e. lots with reduced frontage but having a large area, and common driveways may serve up to four lots. These techniques have helped to provide alternatives to large subdivisions and have preserved large amounts of open space in private ownership. The Zoning Bylaw contains a provision for cluster development, but it has been used just once since its adoption. The Planning Board has contracted with the Montachusett Regional Planning Commission to revise the provision to make it more attractive to developers in order to create more open space set-asides in new residential development.

Soil types have pushed development to larger lots by necessity. In the 1969 Elliot Plan Soil Survey, 40% of the Town had soils with severe development problems, 40% with moderate problems, and the remaining 20% was considered to be suitable. As most of the easily developable land has already been developed, developing the remaining land requires large areas to accommodate individual septic systems and private wells. The Town is unlikely to expand the small public sewer systems in the Town Center due to cost and lack of a large receiving body of water for the discharge. Harvard also does not have a large aquifer or potential surface reservoir that could support a large municipal water system. As a result, overall density will remain low.

It is possible that much of the present agricultural land that is unprotected by Agricultural Preservation Restriction (APR) or similar protection will ultimately be sold for residential development. Of course, the very nature of the Town that everyone treasures would change drastically if the remaining unprotected farms were fully developed. It is a high priority of the Conservation Commission to acquire APRs on as much agricultural land as practical. Other than outright purchase of the land, this is the most cost effective way to preserve the farms.

Development Suitability Analysis

The physical characteristics of Harvard make development difficult. Appendix 1 of the 2016 Master Plan contains a detailed Development Suitability Analysis. The Analysis takes into account environmentally sensitive areas that are not suitable for building, such as wetlands, floodplains, and BioMap core habitats, as well as areas where development may harm important resources, such as water supply protection areas and prime farmland soils. Removing such lands from consideration leaves 1,471 acres that are not currently developed, are not protected from development, do not have environmental constraints, and are potentially developable based on size and access. Of this total, about 1,000 acres are enrolled in a Chapter 61 tax abatement program for forestry management, agricultural production, or recreation. Owners temporarily enjoy benefits of lower taxes but may remove the property for development at any time. These unconstrained lands may be suitable for higher residential density to help meet local housing needs. The methodology behind the Development Suitability Analysis can be found in Appendix 1 of the Harvard 2016 Master Plan.

Section 4: ENVIRONMENTAL INVENTORY & ANALYSIS

A. Geology, Soils, and Topography

Geology

Harvard's present day geology is primarily the result of the tectonic forces during the Paleozoic era of prehistory, some 230 to 600 million years ago. Toward the end of this period, approximately 250 million years ago, the continental plates of Africa and North America collided. Under the tectonic pressures created by this event, bedrock was compressed and folded upward into the Appalachian Mountains. The formations underlying Harvard today, including the town's hills and ridges, are the eroded remnants of these once towering mountains. An example of this is the ridge line of Oak Hill, continuing northeast to southwest, as described by Old Littleton, Slough and Bolton Roads. The geomorphology of the visible landscape today is also the result of eons of wind and water erosion followed by periodic glaciation, all of which transformed the entire region of New England.

There are three major rock types present in Harvard bedrock: Worcester phyllite, composed of metasedimentary graphitic phyllite, and slate; Ayer granite, an igneous intrusive rock that is more resistant to erosion than other rock types; and the metamorphic Brimfield schist/Nashoba formation which contains primarily gneisses and schist with some limestone deposits embedded. The three major types of bedrock lie in three broad swaths running roughly northeast/southwest across the Town. The southeastern swath is Worcester phyllite, the center swath (including Oak Hill) is resistant Brimfield schist and north of the common is Ayer Granite.

Two pockets of different bedrock are worthy of note. Limestone, a less resistant bedrock of marine origin, underlies the Black Pond area. This explains the depressed topographic elevation and the more basic or "sweet" soil found there. Then, on the sharp southwest-northeast ridge known as Pin Hill, a combination of rocks known as Harvard conglomerate can be found. This conglomerate contains a mixture of phyllite, schist, quartzite, and slate and is dark bluish-gray in color.

The type of underlying bedrock does not generally determine whether or not land in Harvard can be developed. Bedrock can affect the quality of water from wells, however. The water from many wells in Harvard is treated for high levels of iron; other minerals, including arsenic also taint the groundwater in various locations. Also, fractures in the bedrock, which cannot be practicably located, can allow leachate from older (pre-Title V) septic systems to infiltrate groundwater.

Surficial Geology

The surface geology of Harvard is varied, and has more implications for development. Our landscape has been shaped by the forces of continental ice sheets up to a mile thick as they advanced and receded over a period starting nearly a million years ago and ending about 10,000 years ago. The glaciers have left a layer of glacial till, unstratified rocks, and rock particles once suspended in the glacier over most of Harvard's bedrock foundation. (See Map A.8)

Glaciers leave characteristic deposits when they are advancing, stagnated, or receding. Drumlins are formed under advancing glaciers and are mounds of fairly compacted clay, sand, and gravel. More than a dozen of these smooth elongated hills can be seen in Harvard; most visibly when they have been cleared for orchards or pasture. One noticeable drumlin, part of the Williams land on Stow Road, has been preserved as conservation land and is a prime sledding hill in winter. Drumlins are favorable sites for orchards and many are still in agricultural use. The scenic qualities of drumlins, preserved until the present as orchards, combined with their lack of bedrock make them particularly susceptible to development.

Landforms that have resulted from melting or receding glaciers such as kame terraces, kettle ponds, and eskers, are evident in southeast Harvard along the Boxborough line from the Cisco site off Littleton County Road, to the Delaney complex, and in the northeast corner of Harvard at Devens. Unlike the unconsolidated and thin deposits of till typical of most of Harvard, the outwash gravels and sands found on Devens are useful and exploited for construction material. Glacial stream outwash material, which is more rounded and better sorted than glacial till, ranges from 40-foot thick kettles to 100-foot thick deltas. Glacial lake outwash deposits are of similar quality and average 30 feet thick. Some of these formations are found on Devens areas zoned for Open Space and Recreation, but much of the land surface located on the former military base has been modified over the years.

A significant ice age legacy in the area is glacial Lake Nashua. There was once a large glacial lake in the Nashua River valley, resulting from a stage when the glacier's waters melted and were naturally dammed within the valley. The lake level fluctuated as water was alternatively gained and released to create outwash patterns or channels throughout the region. The outwash deposits of sand and gravel store great volumes of groundwater and are classified as aquifers. To the west of Still River may be found the stratified clay lakebed remnants representing variations in lakebed deposition. Such clay deposits are non-permeable, and consequently not suitable for development.

Two other reminders of the glacial period remain visible in Harvard; one is the presence of striae or grooves on exposed bedrock where the glacier's erosive power scratched the rock as it moved over it. These grooves are a good indicator of the direction in which the glacier moved in the area. A more violent effect of the glacier's movement known as plucking may have caused the steeper south and southeast faces of major hills such as Oak Hill and Pin Hill. As the glacier moved up and over these hills, it would "pluck" or loosen huge boulders of the bedrock on the lee side, thus accounting for a steeper, more rugged slope. Steep slopes and areas of bedrock outcropping require special engineering when they are developed.

Soils

Geology and soils are important considerations for development. Bedrock and clay deposits hinder drainage. As a result of bedrock on or near the surface in many areas of Harvard, permanent and seasonal wetlands have developed. The prevalence of bedrock and “tight” or poorly drained soils create problems for the construction of septic systems and leaching fields; so much of Harvard does not lend itself to high-density development.

As mentioned under “Surficial Geology,” concentrations of glacial outwash deposits are found in the northwest and southeast corners of Harvard. These areas of permeable soils are much more easily exploited for development than areas of unstratified glacial till that covers most of Harvard. Both these areas are undergoing intensive development: Devens to the north and Cisco/ Trail Ridge housing development to the southeast. At the same time that the pervious nature of these outwash



Glacial Erratic – Brown Land

soils allows for development, it also allows surface water to move into the ground forming important areas of groundwater recharge that are vulnerable to contamination and require protection. Wells on Devens, municipal wells for the Town of Ayer, and high-yield wells to irrigate Shaker Hills golf course tap this major water resource in northern Harvard and neighboring Ayer. Harvard’s second aquifer in the southeast part of Town was expected to supply a proposed housing development on Town land on Stow Road (the “gravel pit”), but at the 2006 Annual Town Meeting the Town voted to reject additional funding of the project, fearing it would be an inappropriate size of this scenic road.

The USDA Natural Resources Conservation Service (formerly the Soil Conservation Service) has mapped the developed areas of Devens as *urban land complex*, having been so modified by development that original soil characteristics are no longer readily identifiable. Devens and the lowlands on the eastern edge of Harvard, have natural soils of the Hinckley-Merrimack-Windsor Association, with very deep, excessively drained soils located on outwash plains. Sandy side slopes adjacent to the many plateaus and developed areas of Devens are prone to erosion, and should be treated with care to minimize erosion. At the other extreme, poorly drained, high organic- and silt-content soils found along the floodplains of the Nashua River and its tributaries are not good areas for development because they cannot support septic systems and the land is subject to flooding. Fortunately, most of the Nashua River floodplain in Harvard is protected as a

National Fish and Wildlife Reserve. The bulk of Harvard is classified as Chatfield-Hollis, moderately deep and shallow upland soils. (See Map A.8).

Topography

Harvard lies on the eastern escarpment of the Worcester Plateau, which is considered to be part of the central New England peneplain or upland physiographic region, and where narrow valleys, steep slopes, low cliffs, and sharp ridges mark the landscape. Harvard's uplands, which rise to a maximum elevation of 620 feet above sea level, afford long views west to Mt. Wachusett, north to New Hampshire's Mt. Monadnock, and east to Boston's skyline. The land falls to the Nashua River Valley to the west and the Assabet River watershed to the east. (See Maps A.2, A.3 & A.8).



Mt. Wachusett from Prospect Hill

B. Landscape Character

The special character of Harvard is defined by the diversity of the landscape, the variations from fields to forest, the hills and valleys, the presence agriculture, past and present, scenic roadways, wetlands and water bodies, and traditional settlement patterns of village centers contrasted with open farmland. It is these aspects of the landscape that define the experience of Harvard's rural character and contribute to the quality of life that Harvard residents cite as their main reason for wanting to live in the Town. This special character is in marked contrast to many nearby Towns that have visibly succumbed to suburban sprawl.

Coming into Harvard from any direction one gets an introduction to the town's overall scenic beauty, agricultural heritage, preserved resources. From the north travelling on Ayer Rd, one sees open fields and views of forested hills and orchards. From the southeast Mass Ave winds its way into town through active orchards, horse farms and wooded hills. From the south along Bolton Rd., one is greeted with small open fields, and views first to the east stretching to Boston, and then to the west to Mount Wachusett. From the west, Route 110 traveling through the quaint village of Still River gives dramatic views of open fields and grand vistas of the entire Nashua River Valley. From the east, along Old Littleton Rd. one really gets a feel for the "Hills of Harvard" as you wind your way up through deep woods speckled with numerous apple and peach orchards. All of these routes into town although main thorough fares are typically designated "scenic" by those who travel them.

Once in the town center one gets a glimpse of one of the town's major natural landscape features, the Bare Hill Pond section of the Bowers Brook waterway. Bowers Brook runs south to north through town and is a unifying feature in many of Harvard's preserved landscape. The designation of historic districts in the Town Center and in Shaker Village, the acquisition of conservation restrictions, and the purchase of conservation lands that can be seen from the roads have made a significant contribution to the preservation of Harvard's visual resource. Preservation of natural, historic, and scenic resources such as Pin Hill, Holy Hill, Horse Meadows, Black Pond area, the Great Elms/Williams land, Burgess/Brown Farm, Dean's Hill, the Sprague, Barba, Clapp Scorgie Tufts, Luongo, and Willard conservation lands adjacent to Bare Hill Pond and conservation land along sections of Bowers Brook have contributed to the protection of significant landforms and areas of scenic interest. They also provide access to some of the interior areas less well known.



Willard Farm – Still River

"The Massachusetts Landscape Inventory: A Survey of the Commonwealth's Scenic Areas," commissioned by the Department of Environmental Management in 1982, "focuses on the Commonwealth's very best landscapes which make up about 9% of the land area." These landscapes encompass several square miles and transcend Town boundaries. Scenic areas in this report are characterized as being Distinctive, noteworthy, or common. Distinctive refers to those areas of the highest visual quality which make up only about 4% of the State, noteworthy, about 5%, and common, the remaining 91%. Harvard has several areas listed in the distinctive and noteworthy categories in the C2 Upper Nashua Valley-Shrewsbury Ridge Unit. Within this unit in Harvard, Prospect Hill, Still River, Shaker Village, Black Pond, Hermann's Orchard/Rodriquez/Ohlin conservation lands, sections of Bower's Brook, Horse Meadows, and Oak Hill areas are classified as distinctive. The substantial noteworthy areas stretch from Harvard's eastern boundary with Boxborough through the Center reaching north and west and also encompass the Nashua River area.

The 2006 Harvard Reconnaissance Report, conducted in conjunction with the Massachusetts Department of Conservation and Recreation, defines Heritage Landscapes as those "special places created by human interaction with the natural environment that help define the character of a community and reflect its past." A list of such Heritage Landscapes was generated by local participants at a meeting held May 10, 2006, and

incorporated into the report. The landscapes are listed below by land use category, with the disclaimer that there are undoubtedly others.

<u>Agriculture</u>	<u>Location</u>
Arnold Farm	57 Old Mill Road
Calkin Farm	146 Littleton County Road
Carlson Orchards	225 Oak Hill Road
Burgess/Brown Farm	Murray Lane
Dean's Hill Orchard	Prospect Hill Road
Doe Orchards	Ayer Road
Double Stone Wall	Still River Road
Endicott Farm	44 Littleton County Road
Evans Farm	Still River Road
Firefly Farm	Corner of Brown & E. Bare Hill Road
Great Elms Farm	Stow Road
Hazel Farm	150 Ayer Road
Hermann Orchards	Littleton County Road
William Park Farm	Ayer Road
Murray Lane Goat Farm	Murray Lane
Oak Hill Orchards	Carlson and Hermann Family Orchards
Sheehan's Farm	177 Massachusetts Avenue
Westward Orchards	Oak Hill Road/ Massachusetts Avenue
Whitney Lane Farm	Whitney Lane
Willard-Watt Farm	12 Still River Depot Road
Willard Farm	Still River Road
Williams Farm	61 Stow Road

<u>Archaeological</u>	<u>Location</u>
Mill	Sherry Road
Mill Ruins	Mill Road

<u>Burial Grounds and Cemeteries</u>	<u>Location</u>
Grave by Charlie Brown Farm	Murray Lane
Harvard Center Cemetery	Massachusetts Avenue
Shaker Cemetery	South Shaker Road
Smallpox Grave	Poor Farm Road

<u>Civic/Village</u>	<u>Location</u>
Harvard Center	Harvard Town Center
Hildreth House	27 Ayer Road
Shaker Village	Shaker Road
Still River Village	Still River Road
Town Common	Ayer Road
Town Hall	13 Ayer Road

<u>Industrial</u>	<u>Location</u>
Slate Quarry	Pin Hill

Institutional

Devens
Fruitlands Museums
Green Eyrie Girl Scout Camp
Harvard Public Library
Holy Hill
Oak Ridge Observatory
Old Public Library
South Village House
Shaker Herb Drying Shed
Shaker Spring House
Shaker Stone Posts
Shaker Whipping Stone
Still River Baptist Church
St Benedict's Abbey Complex

Location

Former Fort Devens
102 Prospect Hill Road
Bare Hill Pond
4 Pond Road
Ann Lees Road
Pinnacle Road
7 Fairbank St.
101 South Shaker Road
Shaker Road
Green Road
Shaker Village
South Shaker Road
215 Still River Road
Still River Road

Miscellaneous

Festivals
General Store
Horse Trough

Location

Harvard Town Center
1 Still River Road (Town Center)
Northeast of Harvard Town Center

Natural

Dean's Hill
Drumlin
Magnetic Hill
Shrewsbury Ridge

Location

Prospect Hill Road
William's Conservation Land, Stow Road
Stow Road at William's Conservation Land
Oak Hill

Open Space/Parks

Blomfelt Land
Burgess/Brown Farm
Dolan-Mason Field
Oxbow National Wildlife Refuge
Harvard Park

Location

Ann Lee Road
Murray Lane
Corner of Slough and Woodchuck Hill
Eastern bank of the Nashua River
35 Lancaster County Rd.

Residential

Fiske Warren House
Ralph Houghton Garrison House
Old houses (Underground Railroad)
Pollard House

Location

42 Bolton Road
204 West Bare Hill Road
39, 74, 90 East Bare Hill Rd
327 Still River Road

Transportation

Ayer Road – Scenic Gateway
Harvard Depot
Littleton County Road – Scenic Road
Stow Road – Scenic Road

Location

South of Route 2
End of Depot Road

Waterbodies

Bare Hill Pond
Bennetts Brook
Black Pond
Bowers Brook
Cold Spring Brook
Golden's Pond
Williams Pond

Location

Access from Pond Road
Shaker Village
Access from Littleton County Road
Bisects Town from Bolton South to Ayer North
Littleton/Harvard Boarder
Old Mill Road
Stow Road

Harvard's scenic beauty in combination with development along Interstate 495 has progressively increased development pressures on the Town and area. The viability of the orchard industry and rising real estate taxes are additional concerns. While many landscapes have been preserved through conservation purchase, APR, and conservation restriction, some orchards and large parcels have been sold and developed. Piecemeal and unplanned development has the potential to erode the existing integrity and quality of Harvard's landscape resources, natural, cultural, and historic, and to compromise wetlands, watersheds, and ponds. The 2016 Master plan outlines strategies to encourage development to be engaged in protecting environmental, scenic, and cultural resources through protective land use policies.



Brown Land

C. Water Resources

Harvard's wetlands (see Maps A.2 & A.3) are valued for groundwater recharge, water filtration, flood control, storm damage and pollution prevention, wildlife habitat, and scenic beauty. Activities in wetlands and their 100-foot buffer zones are regulated by the Massachusetts Wetlands Protection Act (MGL Ch. 131, §40), which is administered locally by the Town's Conservation Commission and by the Department of Environmental Protection (DEP) at the State level. Harvard also has its own wetlands bylaw (the Harvard Wetlands Protection Bylaw), and implementing regulations which strengthen the Act and gives isolated wetlands and vernal pools protection they do not enjoy under State Law. Given the innate natural values of wetlands and their natural connectedness along watercourses, wetlands are prime components of an open space system. Wetlands that are not already part of the Town's conservation lands are priorities for future protection.

Forested wetlands, specifically red maple swamps intermingled with more open shrub swamps are the most common wetlands in Harvard. Those connected with Bowers Brook include the large wetlands stretching from Bowers Springs to Bare Hill Pond and again at the outflow of Bare Hill Pond through to Depot Road. Equally significant are the Bowers Brook wetlands of the Coke and Ohlin conservation lands and the wetland bounded by Route 2 and Poor Farm Road. Near Shaker Village, the headwaters of Bennett's Brook rise from extensive red maple swamps. The wetlands of Elizabeth Brook and the Delaney area have been noted. Finally, Black Pond off Littleton County Road is surrounded by forested wetlands. This is a special area because the alkaline soils here support plants that do not grow in other parts of Town.

Riparian habitat bordered by scrub-shrub and emergent wetlands is found in Bolton Flats and the Oxbow NWR. The importance of this habitat to threatened wildlife has prompted its State designation as an Area of Critical Environmental Concern (ACEC). This extensive protected riparian system of 12,900 acres includes land in Bolton, Lancaster, Harvard, and Leominster.

A special kind of wetland, the vernal pool, is found throughout the Town. Vernal pools are depressions that hold water for only a portion of the year. Because they dry up in summer, they do not support fish and serve as safe breeding sites for an assortment of specialized creatures including fairy shrimp, several species of salamanders, wood frogs and various turtles. Vernal pools can be as small as a dining table and easily go unnoticed. To date nineteen vernal pools in Harvard have been State certified and two in the Harvard section of Devens as well. There are a number of additional potential pools identified but not yet documented.

Surface Waters

The hills and ridges of Harvard that offer long views east to Boston, west to Mount Wachusett and north to New Hampshire, also direct water in as many different directions. Water in Harvard flows into three large watersheds that ultimately drain to the Atlantic at Newburyport via the Nashua, Concord, and Merrimack Rivers. Bolton Road and Slough Road follow the ridge that divides two of these watersheds. To the west, water descends to the Nashua River that flows north through Ayer, Groton and Pepperell and on to New Hampshire where it joins the Merrimack. Water on the east side of Bolton Road and Slough Road flows down via Elizabeth Brook to the Delaney wetlands and on through Stow to the Assabet River in Maynard. The Assabet then flows northeast becoming the Concord River and joins the Merrimack in Lowell. The northeast corner of Harvard, including Shaker and South Shaker Road neighborhoods, drains to Stony Brook, which travels northeast through Littleton and Westford to Chelmsford where it empties into the Merrimack. The land bordering Littleton County Road also drains directly to the Merrimack.

As the home of headwaters to streams that carry water through a good portion of northeastern Massachusetts, Harvard is blessed with relatively high quality surface waters and a responsibility to protect these headwaters.

Within the Nashua River watershed, Harvard's major stream, **Bowers Brook**, flows across the length of Harvard from south to north. It rises in the two ponds at Bowers Springs Conservation Area straddling Bolton and Harvard. From there it threads in several channels through an extensive area of red maple swamp and hummocked shrub swamp before it flows into the south end of Bare Hill Pond.



Bower's Brook

Bare Hill Pond is one of Harvard's primary visual, recreational, and natural resources. A natural lake has existed on the site since the retreat of the glacier at the close of the last Ice Age. During colonial times, the pond was only about 200 acres in size. In 1838, a dam was built that flooded the surrounding pasturelands and increased its size to 300 acres. Bare Hill Pond averages about 10 feet in depth. The original 200-acre pond forms a deeper basin with an average depth of 13 feet, while the 121 acres of flooded flats average only 4.5 feet. Soundings made in August 1977 show the deepest part of the pond to be 24 feet, at a point west of Whitney's Island. Bare Hill Pond is designated by the Commonwealth as a "Great Pond," which gives the general public access to its waters for recreation.

In the late 1990's Bare Hill Pond was designated as endangered by the Massachusetts Department of Environmental Protection due to excessive phosphorous levels (0.44 mg/l) and invasive aquatic species. This made the Pond eligible for Section 319 watershed protection funding and the Town's Bare Hill Pond Watershed Management Committee under the regulatory supervision of the Town's Conservation Commission used grant funding to protect and restore the Pond and its watershed by carefully conducting winter draw downs and installing storm water controls in Town Center and along Pond Road. The result was a significant reduction in phosphorous to below the endangerment level (0.30 mg/l) and in invasive milfoil, fanwort and water chestnut (the latter by repetitive harvesting), and a restoration of numerous native aquatic plant species. Annual monitoring of the watershed is used to determine the need for continued intervention to protect the Pond.

The pond has three beaches, one located along the northern shore at the Green Eyrie Girl Scout Camp, and Town-owned beaches off Pond Road and Warren Avenue. Public access to all three beaches is restricted, but the general public can launch boats at the Town beach and gain pond access through Harvard conservation land. Recreational activities on the pond include swimming, boating, sailing, canoeing, kayaking, rowing, fishing, water skiing, ice-skating, and ice fishing. Residents heavily use the Town beach in summer months; it is the center of recreational and social activity for families with young children. A beach program that includes lifeguard training and staffing, swimming, and boating lessons operates under the aegis of Harvard's Park and Recreation Committee.



Town Beach

Flowing out of the north end of Bare Hill Pond through the dam and spillway, Bowers Brook enters another extensive hummocked shrub and red maple swamp. Water flows through a culvert under Route 110, which bisects the swamp, and continues past the transfer station, under Depot Road to a series of millponds. The brook then passes under Ayer Road where it is released again to spread into a broad marsh bounded by apple orchards to the west and cornfields to the east. Here the brook is dammed by beavers before it passes through more forested land, travels under Route 2 into another wide marsh and red maple swamp below Poor Farm Road, then back under Ayer Road heading north until it is joined by Cold Spring Brook just before the Ayer town line. Cold Spring Brook rises in a wetland north of Mirror Lake in Devens and meets Bowers Brook just east of Barnum Gate to Devens. A chain of ponds surrounded by heavy development in Ayer drain into Bowers Brook, after which the stream changes its name to Nonacoicus Brook, receives Willow Brook and discharges into the Nashua River. All told, the stream has traversed 30 miles from its origin at Bower Springs.

Bowers Brook is classified by the State as a Class B water body (swimmable and fishable). While it originates in protected and undeveloped land, the numerous ponds and impoundments along its course degrade its water quality, contributing to low dissolved oxygen content in particular.

Bowers Brook from Pin Hill in Harvard north to Grove Pond in Ayer, as well as the Black Pond area are considered to be a Natural Heritage and Endangered Species Program (MA NHESP) BioMap core habitat. The Bare Hill Pond area is considered Living water core habitat. As of October 2008, MA NHESP has identified nine State-designated Priority Habitat areas within Harvard and the Harvard section of Devens as well.

The **main stem Nashua River** starts in Lancaster at the confluence of the North and South Nashua Rivers and with the Still River running parallel to it on the east forms a broad alluvial bottomland. Nearly 1,000 acres of this floodplain are protected as Bolton Flats Wildlife Management Area (WMA), an important feeding site for migratory waterfowl. The northern tip of Bolton Flats lies within Harvard where the Still River joins the Nashua. From here, the Nashua meanders north, describing the western boundary of Harvard. The floodplain here is broad and flat, owing to its ancient history as the lake bottom of glacial Lake Nashua. Like today's tributaries to the Nashua, Lake Nashua flowed southeast toward Worcester. When the lake finally drained at the end of the last Ice Age, outwash stopped its southward flow and the river drained north, accounting for the odd pattern in this watershed of tributaries flowing in one direction, then turning 160 degrees to join the main stem river flowing in the opposite direction. These sharp turns slow the current in the main stem river and make the water more susceptible to oxygen depletion from pollution.

The newly augmented Oxbow National Wildlife Refuge (NFW) protects a total of 1,547 acres of river bottom and floodplain with its vernal pools and special plant communities of alluvial red maple swamp, small river floodplain, and bogs. Public access to the refuge including a canoe launch is maintained at the refuge entrance on Still River Depot Road. Much of the Oxbow NWR and Devens South Post constitute a state-designated MA NHESP Rare Wetlands Wildlife site. This whole area plus Bolton Flats WMA represents such a large, relatively undisturbed haven for wildlife that it is identified as a core habitat area in the *Nashua River Habitat Assessment Report* (MAS 2000).

The MassDEP's *Nashua River Watershed 2003 Water Quality Assessment Report* lists the 14.2 mile reach of Nashua River Main Stem from the confluence of the North Nashua River to the confluence with the Squannacook River in Shirley as impaired for primary contact (swimming), and as alert status for secondary contact uses (boating), primarily due to wet weather discharges. NRWA data confirms impairments with regard to E.coli bacteria after rainstorms, and recommends swimmers wait three days after a rainstorm to swim in the river. The *MA 2014 Integrated List of Waters* (a listing of the conditions of MA waters) lists the reach as impaired due to excessive nutrients, biology, and sediments. The city of Fitchburg is working to eliminate combined sewer overflows to the river, and improvements in nutrient removal at wastewater treatment plants will bring continued improvements to water quality.

The southeast quadrant of Harvard lies in the Sudbury/Assabet/ Concord River watershed. Suburban sprawl had made the Assabet one of the most degraded rivers in the State, but installation of sewage treatment plants have helped to improve its water quality. In the 1950s, the Army Corps of Engineers impounded wetlands on the border of Harvard and Stow for purposes of flood control in the Assabet and Concord River basins. The Division of Fisheries and Wildlife manage the dams and surrounding 560 acres of land for wildlife management, hunting, and recreation. Delaney Dam has created a 103 acre pond complex; a smaller dam maintains a large marsh on Great Brook; and a third dam allows the management of roughly 60 acres of marsh along Assabet Brook. The Delaney attracts an especially large number of bird species due to the varied habitats and nesting and migrating waterfowl use the open water and the marshes. The entire Delaney Wildlife Management Area is designated a MA NHESP 2006 Priority Habitat of State Listed Rare Species and Established Habitat of Rare Wildlife, as well as the portion north of Finn Road is designated a "Significant Habitat" under the Massachusetts Endangered Species Act.

The Delaney is heavily used by the public from a parking lot and boat ramp off Harvard Road in Stow.

The streams that feed the Delaney complex (the headwaters of the Assabet) include a tributary of Great Brook that drains Brown Road and several branches of **Elizabeth Brook**. The main branch of Elizabeth Brook rises in a large wetland called Horse Meadows that lies between Littleton County Road and Sherry Road, and then flows south between Codman Hill Road and Interstate 495 until it meets its tributaries at the intersection of Stow Road. One of these tributaries rises in wetlands near the Westward Orchards farm stand on Massachusetts Avenue, flows through the Williams land, down along Stow Road below Great Elms where it is joined by another stream that drains the land along Slough Road. Another tributary is the swamp that stretches along the west side of Interstate 495 where the highway passes through Harvard. All of these watercourses meet and fan out in a wetland complex at the intersection of Stow Road and Codman Hill Road. Interstate 495 and Stow Road bisect this complex and constrict flow to culverts that conduct water to the Delaney wetlands. Early spring runoff swells Elizabeth Brook and its tributaries to the point that periodically water floods over Stow Road. Water quality of Elizabeth Brook is good, but the high gradient and volume of spring runoff carry sediments downstream to settle out in slower reaches.

The northeast corner of Harvard lies in the Merrimack watershed. **Bennetts Brook** drains many acres of forested wetlands favored by beavers along Shaker Road, then flows north through historic Shaker Village, crossing into Ayer as Stony Brook and on to Forge Pond in Littleton. The low density of residential development and forested canopy protect water quality in these headwaters.

Flood Hazard Areas

Definition of the major floodplain and floodway areas are contained in the Flood Boundary and Floodway Maps of the National Flood Insurance Program for the Town of Harvard. These maps are published by the Federal Emergency Management Agency (FEMA), and are dated July 8, 2011. These indicate areas subject to 100- and 500-year floods within the Town. The Massachusetts Wetlands Protection Act includes jurisdiction over the 100-year floodplain and the Massachusetts Rivers Protection Act includes jurisdiction over lands adjacent to perennial streams and rivers to protect important buffer zones. The FIRM maps for Harvard identify the 100- and 500-year floodplains in connection with the following water courses:

- Nashua River
- Willow Brook (draining Robbins Pond in Devens)
- Bowers Brook and its tributary, Cold Springs Brook
- Bennetts Brook
- Elizabeth Brook
- Black Pond Brook

Floods in Harvard, associated with heavy rainfall, snowmelt, and tropical storms have resulted in localized damage. Fully functioning wetlands can absorb tremendous volumes of water and mediate the effects of floods. This is one reason to protect wetlands and their 100-foot buffer zones from development. Fortunately, the largest watercourse in Harvard, the Nashua River is bounded by protected open space, so that floodwaters do not do great

damage to human activities other than agricultural fields. The streams in Town are also well endowed with associated wetlands that function faithfully to absorb floodwaters; these require protection to continue to perform this service during flooding. Town zoning districts delineated in the Town of Harvard Protective Bylaw prohibit building for human occupancy and sewage disposal systems in wetlands and lands subject to flooding.

Aquifer Recharge Areas

Two pockets of sandy glacial outwash are underlain by groundwater aquifers in Harvard. One extends under the eastern portion of Devens in a lobe from the millponds in Ayer down to Mirror Lake. Within this vast medium-yield aquifer is a large high-yield core. This valuable natural resource is vulnerable to contamination because of its porous soils plus past military and current commercial/industrial land use. According to the 2001 Communities Connected by Water study, groundwater quality monitoring has shown minimal contamination to this aquifer. The Devens Water Protection Report, 1994, cites the existence of four high capacity wells that can supply the full build out needs of Devens. A second medium-yield aquifer lies under the Delaney Wildlife Management Area with a high-yield pocket straddling the Harvard-Boxborough line at Codman Hill and Stow Roads. Neither aquifer is tapped by public supply wells in Harvard. (See Maps A.2 & A.3).

Harvard has no water supply reservoirs, but does have Town wells that supply waters to the public schools and buildings in the Town Center. The two primary Town wells are off Pond Road. An emergency backup well on Bolton Road produces water high in iron and manganese. A Town Ground Water Study Committee established in 1982 found that no major bedrock fractures and corresponding primary groundwater recharge areas exist in Town. Minor fractures in the bedrock throughout Town return surface waters to groundwater. This means that there are no good sites in Town for high yield wells for public use.

Private residential wells are adequate for home use and average 125 to 500 feet in depth, although a number of shallow wells exist. Groundwater from private wells was sampled in 1986 and found to be of good quality with the exception of two naturally occurring health hazards, arsenic, and radon, found in some areas. Wells sampled did not contain pesticide residues or pollution from septic systems. There were slightly elevated levels of fertilizers in the Still River area and the well at the Highway Department had very high concentrations of sodium and chloride. The coexistence of septic systems and wells on every house lot makes the quality of septic systems of direct importance to public health.

D. Vegetation

Harvard, located at 42° 30' North latitude and 71° 35' West longitude, is situated in a physiographic region that is referred to by the Massachusetts DEM as the central uplands. The ecoregion is the Southern New England Coastal Plains and Hills. Harvard's forest geography is the result of the interaction of environmental factors such as climate, hydrology, soil type, and topography. The forest vegetation zone is the transition hardwood/hemlock/white pine where the oak-hickory forests of more southerly regions mix with more northern species such as yellow birch, black birch, sugar maple, and beech.

The forests have not been static over time. Forests of today are distinctly different from the pre-settlement forests as a result of over three hundred years of human activities and changing land use. In many instances, forest compositional trends can be tied to prior land use. Harvard's forests also reflect a history of natural disturbance such as hurricanes and natural and introduced pests and pathogens such as chestnut blight and Dutch elm disease.



Maidenhair Fern

Harvard's landscape of ridges, hills and valleys in combination with the Town's forests, meadows, orchards, ponds, streams, wetlands, and vernal pools provide a variety of habitats which support a diversity of trees, under-story trees, shrubs, and a diverse ground cover-mosaic of woody species, wildflowers, ferns, clubmosses, grasses, sedges, and rushes. General plant communities in Harvard include the oak forest hilltop, mid- and low-slope, mixed mesophytic, post agricultural, marsh, wet meadow, shrub swamp, wooded swamp, bog, rock ravine, stream bank, field, and meadow.

Specific natural communities as defined in *Draft Classification of Natural Communities of Massachusetts* include: white pine-oak; oak-hemlock-white pine, successional white pine, mixed oak, oak-hickory, dry, rich acidic oak forests, northern hardwoods-hemlock-white pine, successional northern hardwoods forests, red maple swamp, hemlock ravine community and a variety of palustrine communities such as red maple swamp, deep and shallow emergent marsh, shrub swamp, and woodland vernal pool. Uncommon natural communities in the Oxbow/Bolton Flats area as documented in *Focus Areas for Wildlife*

Habitat Protection in the Nashua River Watershed include Pitch Pine/Scrub Oak Barrens, Alluvial red maple swamp, small river floodplains, and bogs.

Detailed inventories and surveys of plants have been conducted in three areas: Devens (published 1995 in *Rhodora*), the Oxbow National Wildlife Refuge (managed by the U.S. Fish and Wildlife Service), and Fruitlands Museums (*Ecological Inventory and Conservation Management Plan for the Fruitlands Museum in Harvard, Mass.*) Devens and Oxbow include area beyond Harvard's boundaries; Fruitlands is entirely within the Town.



Red Trillium

Table 4.1 - Uncommon Plants Found in Harvard

Scientific Name	Common Name
<i>Acer pensylvanicum</i>	Striped maple
<i>Actea pachypoda</i>	White Baneberry
<i>Adiantum pedatum</i>	Maidenhair fern
<i>Aquilegia canadensis</i>	Canadian columbine
<i>Aralia nudicaulis</i>	Bristly sarsaparilla
<i>Arctostaphylos uva-ursi</i>	Bearberry
<i>Asplenium platyneuron</i>	Ebony spleenwort
<i>Ceanothus americanus</i>	New Jersey Tea
<i>Clintonia borealis</i>	Clintonia
<i>Cornus florida</i>	Flowering dogwood
<i>Cystopteris fragilis</i>	Fragile fern
<i>Epigaea repens</i>	Mayflower
<i>Fraxinus nigra</i>	Black ash
<i>Gentiana clausa</i>	Bottle gentian
<i>Hepatica nobilis</i> var. <i>obtusata</i>	Round-lobed Hepatica
<i>Lobelia cardinalis</i>	Cardinal flower
<i>Lupinus perennis</i>	Wild lupine
<i>Matteuccia</i> <i>struthiopteris</i>	Ostrich fern
<i>Orobanche uniflora</i>	One-flowered cancerroot
<i>Panax trifolium</i>	Dwarf ginseng
<i>Polygala sanguinea</i>	Milkwort
<i>Rhus vernix</i>	Poison sumac
<i>Sanguinaria canadensis</i>	Bloodroot
<i>Saxifraga virginiana</i>	Early saxifrage
<i>Trillium erectum</i>	Red trillium
<i>Vaccinium</i> <i>macrocarpon</i>	Cranberry
<i>Viola conspersa</i>	Dog violet
<i>Viola pedata</i>	Bird's-foot violet

Table 4.2 - State-listed species documented in Harvard as listed by the Natural Heritage and Endangered Species Program (NHESP) 2016

Scientific Name	Common Name	Taxonomic Group	Status
<i>Alnus viridis</i> ssp. <i>crispa</i>	Mountain Alder	Vascular Plant	T
<i>Amelanchier sanguinea</i>	Roundleaf Shadbush	Vascular Plant	SC
<i>Carex typhina</i>	Cat-tail Sedge	Vascular Plant	T
<i>Eleocharis ovata</i>	Ovate Spike-sedge	Vascular Plant	E
<i>Lygodium palmatum</i>	Climbing Fern	Vascular Plant	SC
<i>Nabalus serpentarius</i>	Lion's Foot	Vascular Plant	E
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	Vascular Plant	T
<i>Platanthera flava</i> var. <i>herbiola</i>	Pale Green Orchis	Vascular Plant	T
<i>Sparganium natans</i>	Small Bur-reed	Vascular Plant	E
<i>Veronicastrum virginicum</i>	Culver's-root	Vascular Plant	T

SC-Special Concern, E-Endangered, T- Threatened

Table 4.3 - State-listed species documented in the Oxbow National Wildlife Refuge

Scientific Name	Common Name	Status
<i>Asarum canadense</i>	Wild Ginger	WL
<i>Bidens discoidea</i>	Small Begger-ticks	WL
<i>Eleocharis ovata</i>	Ovate Spike Sedge	SE
<i>Geranium bicknellii</i> var. <i>bicknellii</i>	Bicknell's Cranesbill	WL
<i>Liatris borealis</i>	New England Blazing Star	SC
<i>Lygodium palmatum</i>	Climbing Fern	SC
<i>Populus balsamifera</i>	Balsam Poplar	WL
<i>Sparganium minimum</i>	Small Bur-reed	SE

SE-State Endangered, SC-State Concern, ST-State Threatened, WL-Watch List

Shade Trees

The volunteer Elm Commission was created by the Town of Harvard in the early 1970s when it became apparent that the many old majestic elms that defined the town center Common and other public lands were threatened by Dutch Elm Disease. A robust fungicide injection and a pruning program saved over 40 old elms, located primarily in the Harvard Town Corridor (Pond Road north to Harvard Park and west to Prospect Hill).



Disease Resistant Elms (foreground) and Mature Elms (background) in front of Old Bromfield

Sixteen years ago, the Elm Commission, working jointly with the elected Tree Warden, developed a program of independent professional care which changed yearly treatment to rotating fungicide injections every three years and moved toward planting diversified shade tree species—including disease resistant elms. While many of the old elms live on, their maintenance is costly, so the Elm Commission has prioritized care for about half of the original inventory. No fungicide injections are performed on new plantings.

The ongoing activities of the Harvard Elm Commission include tree planting, watering, giving nutrient supplements, pruning, managing fungicide injections, fundraising, and coordinating a yearly first grade tree planting event, with gift trees to each student and teacher. The Elm Commission's budget was combined with the Tree Warden's budget and an annual newsletter was established, with the aim of raising funds exclusively for town tree care and planting. The Elm Commission and Tree Warden have worked with other stakeholders in Harvard to select and locate new tree plantings. Large projects such as local school and library renovations have prompted the planting of a host of diversified tree species. In addition, the volunteer Elm Commission has planted over 80 trees in the Town Corridor. The table below shows the diversified species set, quantities and survival rates for trees planted in the last approximately 16 years, as of November 2016.

Outside of the Town Corridor, Harvard is characterized by a predominant forest cover typical of that in central Massachusetts. The Town abides by the Massachusetts General Laws, Chapter 87 as it pertains to shade trees. In addition, Harvard's Scenic Road by-law protects trees along all non-arterial roads.

Table 4.4 – Shade Trees Planted in the Town Corridor

Common Name	Planted	Surviving	Survival Rate
Princeton DR Elm	10	9	90%
Accolade DR Elm	3	3	100%
New Harmony DR Elm	3	0	0%
Washington DR Elm	3	2	67%
Liberty DR Elm	3	2	67%
Patriot DR Elm	1	1	100%
Valley Forge DR Elm	2	2	100%
Horse Chestnut	2	2	100%
Tulip	1	1	100%
Red Maple	3	3	100%
Sugar Maple	12	11	90%
Crabapple (golden raindrops)	3	3	100%
Hawthorn (Winter King Green)	3	3	100%
Red Oak	7	6	86%
White Oak	3	1	33%
London Plain	2	2	100%
Ginko	1	1	100%
Dawn Redwood	2	1	50%
Magnolia	1	1	100%
Red Leafed Maple	2	2	100%
Cedar /Arborvitae	5	5	100%
Kousa Dogwood	3	3	100%
Cherry	1	1	100%
Pear	2	2	100%
Spruce	4	4	100%
Columnar Oak	1	1	100%
Little Leaf Linden	1	1	100%
Total	84	73	87%

DR = Disease Resistant (to Dutch Elm Disease)

E. Fisheries and Wildlife

Harvard's diverse vegetative communities provide habitat for a variety of wildlife species. Some key features in Harvard are wetlands and transition zones, streams, ridges and ledges, undeveloped land, sheltered south-facing slopes, north-facing cool, damp slopes, margins of orchards, and variety of habitat diversity in contiguous areas.

Besides the usual squirrels, chipmunks, mice, moles and other small mammals, species found throughout Harvard include fisher, raccoon, skunk, red fox, river otter, ermine, coyote and deer. Deer are at the threshold of overabundance in our area, according to state biologists. Bobcat and black bear have been documented a number of times in recent years at various locations in town. Bears have been particularly attracted to bird feeders and bee hives. There are also reports of moose (Oxbow and Black Pond/Vesenka area) track or sign.

There is a predictable array of New England nesting birds in Harvard and the combination of unusual habitats provides for a variety of birds. An example of this variety is documented in "The Ecological Inventory and Conservation Management Plan for the Fruitlands Museums" which lists fifty species counted on the property during eight dates in June and July of 1999. The Nashua River Watershed is named an Important Bird Area by Mass Audubon and both federally and state listed bird species have been documented there. There are many migrating waterfowl and birds that pass through Harvard. Some excellent birding spots are Oxbow, Delaney, Bolton Flats, Black Pond, Bowers Brook, Bare Hill Pond, and the adjacent conservation lands.

Bare Hill Pond, Bowers Brook, and the Nashua River together with the many streams and small ponds in Harvard provide habitat for many species of aquatic wildlife. Bare Hill Pond has an excellent fish population and samplings have discovered largemouth and small mouth bass, chain pickerel, brown bullhead, bluegill, pumpkinseed, white perch, yellow perch, golden shiners and black crappie. Bare Hill Pond is also home to frogs, painted turtles, snapping turtles, black water snakes, and crayfish.

Vernal pools are temporary bodies of fresh water and provide crucial habitat to several vertebrate and many invertebrate species. Vernal pools contain many obligate species, organisms that are unable to complete their life cycles without this habitat. Vernal pools are also an important habitat resource for many birds, mammals, reptiles, and amphibians, including many State-listed rare species. The marbled salamander (*Ambystoma opacum*, a



Blue Spotted Salamander – Oxbow NWR
(Courtesy of Tom Murray)

threatened species) and the blue-spotted salamander (*Ambystoma laterale*, a species of special concern) are obligate species of vernal pools that have been documented to occur in Harvard. Certification is one of the best ways to protect vernal pools. There are currently 17 vernal pools in Harvard certified with the Natural Heritage and Endangered Species (NHESP) program, although maps show a number of other potential pools in Town. With this in mind the Conservation Commission revised the Wetland Protection Bylaw in 2006 to include the protection of vernal pools and a 200 foot buffer zone around those pools. Since many species that breed in vernal pools migrate several hundred yards into the upland it is important that the upland habitats surrounding these pools be equally protected.

Detailed inventories and surveys of wildlife have been conducted in several areas of Harvard, notably for the Oxbow National Wildlife Refuge and for Fruitlands Museum. A species list for the Oxbow NWR is available through the U.S. Fish and Wildlife Service in the Eastern Massachusetts NWR Complex office in Sudbury, MA. which manages the Refuge. The "Biodiversity Days" sponsored by the Friends of the Oxbow National Wildlife Refuge in 2000 identified over 850 individual species of plants and animals. A list of mammals, birds, invertebrates, reptiles and amphibians for Fruitlands Museums is included in the "Ecological Inventory and Conservation Management Plan for the Fruitlands Museum in Harvard, Mass." The report notes that the "mix of forest and open meadow provides important interior forest and grassland habitat for regionally declining bird species, and the wooded uplands complement the adjacent lowlands of the Oxbow National Wildlife Refuge." The purchase of the adjacent Watt land that was incorporated into the Oxbow in 2001 provides permanent protection for additional forest, meadow, and critical grassland habitats.

Continuous open spaces, especially in association with rivers or water bodies, can be important transit routes for wildlife. These corridors extend regionally wherever open space exists as a continuous system. The Nashua River corridor, containing the Oxbow NWR and Fruitlands, is a noteworthy example.

Many animals establish extensive hunting or browsing routes so a matrix of routes allowing multiple paths over a sufficiently wide area is desirable. In addition to the Oxbow NWR (787.5 acres), Bolton Flats (87.8), and Fruitlands Museum (133 acres), large uninterrupted blocks of forest land in Harvard include the Delaney Wildlife Management Area (261 acres), Clapp/ Scorgie/Tufts-Smith Conservation land, Black Pond/Vesenka Conservation lands, and Great Elms Conservation land and adjacent privately owned forest land. New England Power (NEP) owns a variety of undisturbed forestlands roughly paralleling Interstate 495 which contribute to several large uninterrupted blocks of forestland and could provide valuable connections between established and future conservation lands.

Bowers Brook, which runs south to north through Harvard, is a stream corridor with some substantial sections of protected open space. Other wetland systems with some protection in Harvard include the Horse Meadows, Bennetts Brook/Shaker Village area, Black Pond, and Delaney/Elizabeth Brook areas. Continuous open spaces in association with ridges can also be corridors for wildlife. The Shrewsbury Ridge runs from Littleton through Harvard and into Shrewsbury.

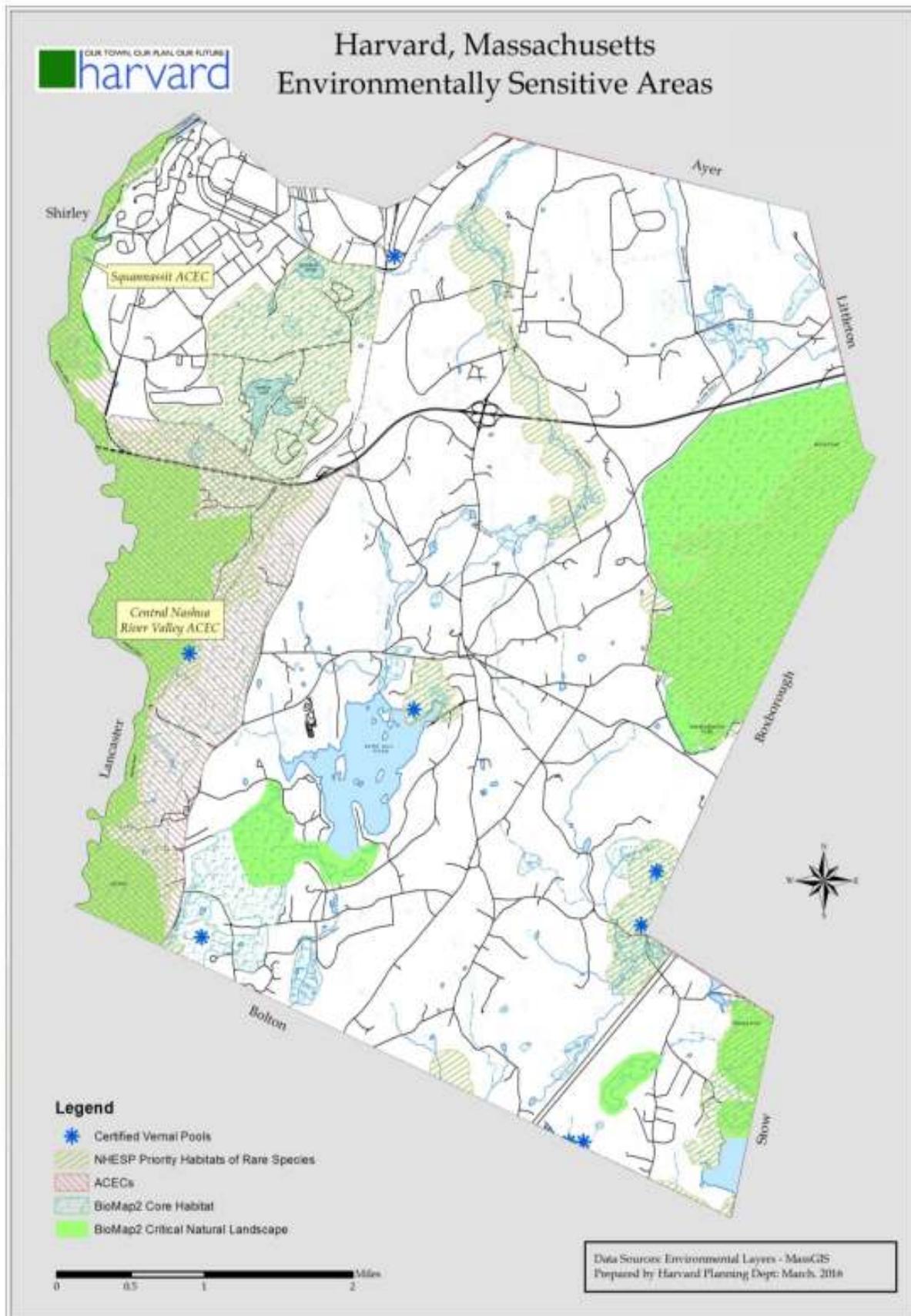
According to the 2012 *Biomap2*, Harvard (including its part of Devens) contains 4,876 acres of Core Habitat, including 2 Exemplary or Priority Natural Community Cores, 4 Wetland Cores, 11 Aquatic Cores, and 8 species of Conservation Concern Cores. It also includes 2,834 acres of Critical Natural Landscape, including 1 Landscape Block, 4 Wetland Core Buffers, and 4 Aquatic Core Buffers. Within Harvard and the Harvard section of Devens there are nine areas designated as Estimated Habitats of Rare Wildlife on the Natural Heritage and Endangered Species Program map (dated October 2008).

In addition, the area around the Oxbow National Wildlife Refuge, Bolton Flats Wildlife Management Area, and Fruitlands Museums has been designated an Area of Critical Environmental Concern. This "Oxbow/Intervale/Bolton Flats" area is also cited in a report, "Focus Areas for Wildlife Habitat Protection in the Nashua River Watershed," as a large wildlife habitat focus area of 8,476 acres. These areas with a large amount of relatively undisturbed interior are "cornerstones of a habitat reserve design for the Nashua River Watershed."

These designations of Core Habitat, Critical Natural Landscape, Estimated Habitats of Rare Wildlife, and ACEC warrant further habitat and resource protection in Harvard: only 47.3% of Core Habitat and 49.4% of Critical Natural Landscape in Town is currently protected.



Blandings Turtle – Oxbow NWR
(Courtesy of Tom Murray)



Map 4.1 – Environmentally Sensitive Areas

Table 4.4 - State listed wildlife species documented in Harvard by the NHESP, 2016

Scientific Name	Common Name	Taxonomic Group	Status
<i>Ambystoma laterale</i>	Blue-spotted Salamander	Amphibian	SC
<i>Ambystoma opacum</i>	Marbled Salamander	Amphibian	T
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Bird	SC
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	Bird	T
<i>Caprimulgus vociferus</i>	Eastern Whip-poor-will	Bird	SC
<i>Ixobrychus exilis</i>	Least Bittern	Bird	E
<i>Podilymbus podiceps</i>	Pied-billed Grebe	Bird	E
<i>Rallus elegans</i>	King Rail	Bird	T
<i>Anax longipes</i>	Comet Darner	Dragonfly/ Damselfly	SC
<i>Rhionaeschna mutata</i>	Spatterdock Darner	Dragonfly/ Damselfly	SC
<i>Notropis bifrenatus</i>	Bridle Shiner	Fish	SC
<i>Emydoidea blandingii</i>	Blanding's Turtle	Reptile	T
<i>Glyptemys insculpta</i>	Wood Turtle	Reptile	SC
<i>Terrapene carolina</i>	Eastern Box Turtle	Reptile	SC

SC-Special Concern, T-Threatened, E-Endangered

Table 4.5 - State listed species documented in the Oxbow National Wildlife Refuge

Scientific Name	Common Name	Status
<i>Ambystoma laterale</i>	Blue-spotted Salamander	SC
<i>Clemmys guttata</i>	Spotted Turtle	SC
<i>Glyptemys insculpta</i>	Wood Turtle	SC
<i>Emydoidea blandingii</i>	Blanding's Turtle	ST
<i>Sorex palustris</i>	Common Water Shrew	SC
<i>Terrapene carolina</i>	Eastern Box Turtle	SC
<i>Alasmidonta undulata</i>	Triangle Floater (mollusk)	SC
<i>Lemmeria digitalis</i>	(moth)	WL

SC-State Concern, ST-State Threatened, WL-Watch List

F. Scenic Resources and Unique Environments

Scenic variations from field to forest, orchards, hills and vistas, valleys, wetlands and water bodies, stone walls, winding country roads, the historic districts of the Town Common, Shaker Village, and Still River Village all contribute to the scenic resources and unique environments that comprise Harvard's rural character. These rural characteristics are valued by the citizens of the Town and are consistently cited as one of the main reasons for wanting to live in Harvard. The area's most frequently mentioned in previous plans, a variety of reports, and our survey are included below. (See Map A.5).

Bare Hill Pond: This 300-acre Great Pond is visible from the Town Center and other vistas and provides many recreational opportunities for residents as well as natural habitats for wildlife along its shores and adjoining wetlands. The pond is accessible via a Town beach and through several adjacent parcels of conservation land. Protection of the watershed is critical to preserve both the scenic and natural quality of this area.

Nashua River Valley: Some of the most valuable and beautiful scenic resources of Harvard are the vistas from Still River, Prospect Hill, and Fruitland's Museums overlooking the Nashua River. The open fields of the museums, former Watt dairy farm, and private holdings along Prospect Hill and Still River Roads afford views to Mt. Wachusett in the west and Mt. Monadnock in New Hampshire. The Watt dairy farm has been protected by a major effort between the Harvard Conservation Trust, the Town of Harvard, the U.S. Fish & Wildlife Service, and the Trust for Public Lands. The large holdings of the Fruitlands Museum will be protected by integration into the Trustees of Reservations however the religious orders located on Still River Road, as well as two private farms are not in permanent protection. Protection of these view sheds is critical to this resource. As was brought to the forefront during the drive to attract a major pharmaceutical manufacturing plant at Devens, this view shed remains a critical and integral part of Harvard's scenic resources. Cooperative efforts with neighboring Towns along with Devens, presently controlled by Mass Development, is essential to maintain this view shed and the rural character of Harvard.

Nashua River: The Nashua River designated a Scenic River by the Commonwealth of Massachusetts, is an excellent recreational, conservation, and wildlife resource. Access to the river is by way of the Oxbow National Wildlife Refuge. Additional protection of this river corridor and greenway from the Massachusetts Division of Fisheries and Wildlife's Bolton Flats in the south to the Oxbow is critical to maintain this resource. The U.S. Army still has holdings at Devens' South Post, south of Route 2. However, Federal legislation now provides for the transfer of those lands to the U.S. Fish & Wildlife Service for inclusion in the Oxbow National Wildlife Refuge upon the Army's departure.

In 1996, the Department of Environmental Management designated 12,900 acres in North Central Massachusetts as the Central Nashua River Valley Area of Critical Environmental Concern (ACEC). The ACEC includes 1,850 acres in Harvard, including Still River Village (the west side of Rt. 110 and Prospect Hill Rd), Oxbow National Wildlife Refuge, Bolton Flats Wildlife Management Area, Fruitlands Museum, and private lands. In 2002 a portion of Devens land within Harvard was similarly protected by the Squannassit ACEC.



Nashua River Valley from Prospect Hill

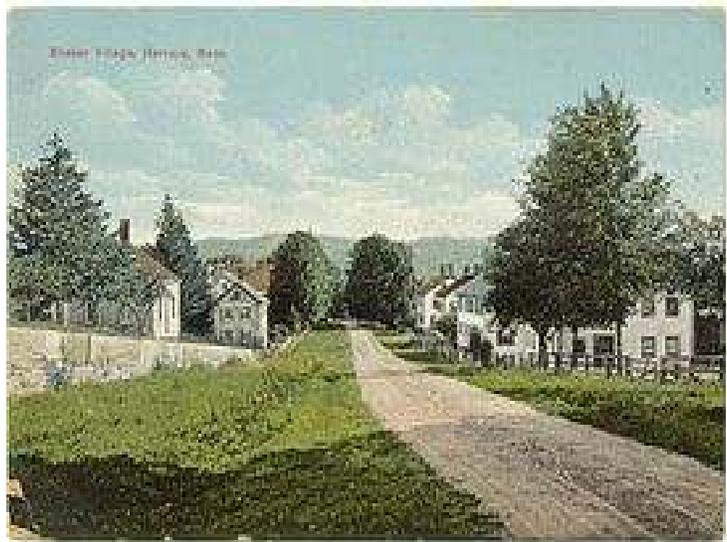
Pin Hill: In this area along Bowers Brook there are historic slate quarries and scenic rock outcroppings, as well as remnants of mills, which are scenic vestiges of Harvard's historic past. From certain areas of this ridge, which extends from the Town Center, there are vistas out to the west, east to the orchards, and south to Town Center.

Black Pond: Noted for its botanic, geologic, and historic interest, the area around Black Pond has been consistently cited as an important scenic and environmental resource, and it is an area noted as "distinctive" (areas of highest visual quality which make up only about 4% of the state) in the Massachusetts Landscape Inventory. Fifty-four acres of this area are under Conservation Commission protection along with the abutting twenty-three acres of Vesenska land, and access is provided by an easement through private land.

Horse Meadows: The cliffs, outcrops, rocky basins, mature woodlands, wetlands, and small ponds of Horse Meadows provide a naturally secluded and wild enclave on the eastern side of Town. The meadows are the best example in Harvard of a depression formed by glacial plucking. The Town owns 20 acres and the Conservation Trust owns 28.8 acres of this area. Along Sherry Road, there are curious stone rows, mounds, and standing stones. Harvard University's James Mavor and Byron Dix in their book *Manitou* present a theory that the Indians native to this area created rock structures, particularly rows that connect a feature of the landscape with another, like water to a hilltop. These can also connect a constructed rock feature with a natural one like a ridge or a boulder. Mavor and Dix speculated that these rock formations might have been used at some time for astronomical observations and planting calendars.

Holy Hill and Shaker Village: Shaker Village was placed on the National Register of Historic Places in 1989. Included in the district are 15 contributing buildings, 11 sites, 5 structures, and 9 non-contributing buildings. The Shaker Village is significant as the location of one of the utopian religious communities known as Shakers, a name derived from behavior during worship ceremonies. The Shakers were founded by Jane Wardley and more notably by Mother Ann Lee around 1747 and thrived from the late 18th century into the early 20th century. It was one of only 20 such communities in the country and contains important examples of Shaker architecture and agricultural artifacts. The Shakers created a thriving farming community, and historically significant Shaker architecture as seen in the Church Family and South Family settlements. The Village also contains a cemetery with rare cast-iron markers, an outdoor worship/dancing ground (Holy Hill of Zion), a mile-long aqueduct from a distant springhouse, and extensive and beautiful stone work.

In 2002, Town Meeting allocated \$3,100 from the Community Preservation Fund for an assessment of a magnificent stone Shaker herb drying shed owned by the Town. Additional funds to complete the restoration of the herb shed were approved in subsequent Town Meetings through the use of Community Preservation Funds. This historic and scenic area is partially protected on the west by the Holy Hill conservation land comprising 126 acres, including 41 acres of land under conservation restriction, and to the east by Shaker Hills Country Club and adjoining woods and wetlands. Adjoining the golf course is a 24-acre APR parcel owned by the New England Forestry Foundation.



Shaker Village, c. 1905

Upper Stow Road: Adjacent rolling meadows, open fields, stone walls, the Williams Pond, Great Elms Farm and the Brown Conservation land offer rural vistas. Eighty acres of this area, including a prominent drumlin, pasture, and a pond, are protected for conservation. Trails through the area provide access to ponds, wildlife habitats, and scenic vistas.



Williams Land from Stow Road

Bowers Brook: Bowers Brook, flowing through Bare Hill Pond, winds through town from south to north and joins the Nashua River in Ayer. Various portions of this stream corridor are under Conservation Commission and Trust protection. Trails parallel and cross the stream at scattered locations throughout Town. The combination of steep cliffs, open meadows, and wetlands provide a great diversity of habitat and scenic interest along this corridor. A scenic overlook exists on the Sprague land with a vista of Bowers Brook emptying into Bare Hill Pond. Much of the land along Bowers Brook is privately owned and not permanently protected. This land has been identified as a high priority to protect the Bare Hill Pond watershed.

Orchards throughout Town: Orchards dominate many of the hills in Harvard and are an important aspect of the rural character of the Town. The scenic vistas from roads over orchards to the north and west and vistas from roads to hillside orchards are noteworthy. A number of these areas are in the “distinctive” category of the Massachusetts Landscape Inventory. Protection of these orchards and their continued agricultural use are critical to Harvard’s landscape. Although a number of the orchards are in the “distinctive” category local it does not protect them from the increase demand for large house lots. More and more of these orchards are being sold off piecemeal to the detriment of the larger view shed. Also, because of decreasing open space the orchards are being forced to fence out the deer population.



Community Harvest Project Orchard from Prospect Hill Road

Town Common: The Town Center is a historic district listed on the National Register in 1977, which is comprised of scenic commons, adjacent historic and public buildings, and private residences. The district includes significantly intact residential, civic, and religious buildings dating from the 18th through the 19th centuries. Its architectural richness is illustrated in a wide variety of architectural styles. These buildings are an essential part of Harvard's rural village character and the Boston Globe has described the Common as a "nearly perfect" traditional New England village. The elm trees that grace the commons and roadways are an endangered treasure. The Town has an Elm Commission that actively treats, maintains, and protects these beautiful trees that have been lost in most Towns because of Dutch elm disease. In recent years several significant elms on and around the Common have succumbed to Dutch elm disease and The Harvard Elm Commission is actively treating the existing elms to protect them and is systematically introducing disease resistant elms each year.



**Harvard Unitarian Universalist Church
from the Town Common**

Still River Village: Primarily residential/agricultural, Still River has a post office, fire station, the Still River Baptist Church, owned by the Harvard Historical Society, and several religious communities. Bounded largely by fields affording views to the west and north, this is a scenic area that is being negatively affected by piecemeal development of the open fields and meadows. The repair of septic systems has altered the Still River village and unsightly mounds have been sprouting up in the district. The Town was granted a portion of land purchased from the Watt family by the US Fish and Wildlife dedicated to serving as a communal septic system for the village. To date the system has not been designed nor implemented, and septic repairs in the village continue to chip away at the village's scenic beauty.

Old Bromfield: Old Bromfield was the original high school in Harvard and is located at the heart of the Town Center. The building is an architectural gem, designed by Peabody and Stearns circa 1878. It was used by the Town as a school until 2003 when it closed due to the structure's inability to serve as a modern academic building and the expansion project at the Bromfield School was completed.

In 1999 the Town agreed to convert Old Bromfield into a new larger library facility. The new library was formally dedicated and opened to the public in April of 2007. It is a wonderful integration of the old and new, with the addition echoing the Peabody and Sterns architecture; it beautifully preserves this Town icon. The 11,500-square-foot addition expands the library as a resource for the whole community and was selected as a winner of Building Design and Construction's 2008 Reconstruction and Renovation Awards, which go to the best projects based on design, engineering and construction, as well as on overall community involvement with the project.



Old Bromfield / Town Library from Massachusetts Avenue

Delaney Wildlife Management Area: This 560-acre area crosses four town lines: Bolton, Harvard, Stow, and Boxborough and contains 3 flood control dams. Owned by the State and maintained by the Massachusetts Department of Fisheries and Wildlife, the area provides opportunities for hunting, fishing, canoeing, and wildlife viewing. The size and nature of the area (mostly wetlands) make this an important area for wildlife habitat protection.

Shrewsbury Ridge in Harvard: The Shrewsbury Ridge is a long escarpment that runs from Littleton MA to Shrewsbury MA. It is an analog of the Allegheny ridge and valley terrain. This prominent ridge of resistant rock (known in sections of Harvard as Oak Hill) runs northeast to southwest and has an elevation of 500 to 600 feet. It is visible from a distance and affords views east to Boston and west to Mt. Wachusett. There are areas of botanic interest in the valleys off the steep southeast slope where there are stringers of marble and historic pre-revolutionary lime quarries, located in the Black Pond area previously cited. The valley area is an important flyway for migratory birds.

Cultural and Historic Resource Areas

Districts

The Harvard Town Common was established in 1733 by a gift of thirty acres from the Lancaster proprietors. By 1830, only “nine acres and eighty-three rods” and burial ground remained of the common land. Thus by encroachment, trespassing, and some downright illegal appropriations, the little village of Harvard center was established.

Today the Town Common is a Historic District. The Town Center includes the Common, the First Congregational Unitarian Church, Bromfield Academy (1878), and the Evangelical Congregational Church (1832). Also located in the Town Center are St. Theresa’s Church (1925) which has a stained glass window made by German artisans, the Atherton-Royal House (1734) which was once a way-station and horse change on the old Boston to Montreal turnpike, and the Benjamin Nourse House (c. 1750) which was once the Unitarian Parsonage. The Harvard General Store (The General) built in 1816, A Civil War Memorial, Veterans Memorial, watering trough, powder house, pound, and flag pole, are located in the center, along with an old millstone from the site of the Jonas Prescott mill given by George W. Golden in memory of his mother with a bronze town marker, and a granite step given by the late Mrs. Michael Griffin as a gift to the Harvard Historical Society. Plantings around the Common were selected under the guidance of Mr. Richard Larkin, Assistant Curator of Old Sturbridge Village and Gary Koller, Curator of the collection at the Arnold Arboretum. The Harvard Park and Recreation Committee and the Harvard Garden Club maintain the plantings on the Common and the Garden Club plants flowers yearly in the window boxes.



Town Hall

Shaker Village and Shaker Cemetery, a Local Historic District, are located in the northeast corner of Harvard, off South Shaker Road to Shaker Road. The Shakers came to Harvard in 1781. By the 1790’s, they had developed into a thrifty, resourceful, and peaceful group. By 1919, the Shakers had abandoned their holdings in Harvard. A number of Shaker buildings have survived and are well maintained by their present owners. All the homes in the village are private. In 1972, the Conservation Commission was authorized to acquire for the Town the Holy Hill of Zion. Holy Hill was established by the Shakers as an outdoor worship area and was popularly known as “the Dancing Ground.” The Holy Hill area is marked and has a small lot for parking cars. In 2006 new signage to the entrance of Holy Hill was installed. The sign details the history of the Shakers.

Buildings

William Emerson, father of Ralph Waldo Emerson, founded Harvard's first public library in 1793. The building was built largely with funds from the estate of Augustus Sawyer. When these funds ran short, a public subscription made up the difference with a large contribution having been donated by Warren Hapgood. Later, Mr. Hapgood gave a further sum to build the Hapgood wing in the rear of the building. This building, now known as the Hapgood Building, was used as a library until the spring of 2007, with the last book checked out by long-term resident and library trustee, Dr. Jeffrey Harris, on March 10, 2007. Since that time the building has been used occasionally for committee meetings and for other events, and more recently housed town departments during the renovation of the Town Hall. It is expected that this important building will continue to be an active hub for the entire community, contributing to maintaining a vibrant Town Center.

In the Still River and Prospect Hill areas, although not included in the Local Historic District, are several buildings important to Harvard's history. The **Still River Baptist Church** (1832) was listed on the National Register of Historic Places in 1996. The building contains the original Baptist sanctuary and pipe organ. It is said that the 1807 bell located there originally hung in Massachusetts Hall at Harvard University. It is now owned by the Harvard Historical Society and serves as their headquarters. **The Henry Willard House** (c. 1730) is now owned by the St. Benedict Abbey. **The Ralph Houghton Garrison House** (1648) is on the east side of Still River Road. The earliest portion of this house was built on land from a grant from the King of England. Occupied by seven generations of Houghtons, it has a chimney made of bricks from the property. The chimney has nine flues, one of which is intended for smoke curing meat.



The Ralph Houghton Garrison House

On top of Prospect Hill, wealthy Bostonian Clara Endicott Sears built her summerhouse, The Pergolas, in 1910 with a marvelous view of the Nashaway intervale. Founders of the 19th century Transcendentalist Movement, Bronson Alcott and Charles Lane and fellow transcendentalists used this site from June 1843 until January 1844 for the Fruitlands experiment. Ms. Sears preserved their farmhouse to start **Fruitlands Museums**. The original farmhouse was opened to the public in 1914. In 1918, Fiske Warren sold the Shaker Men's Shop to Miss Sears who had it removed to its current location at Fruitlands. These and other buildings acquired by Miss Sears that currently make up the museums are the Fruitlands Farmhouse, the Shaker Museum, the Art Museum, the Native American Museum and the Wayside Visitor Center.



Fruitlands Museum

The 5.66 acre Hildreth House property was the summer residence of the Hildreth family, a major philanthropic supporter of the town. The house and surrounding property is an important historic and institutional Town resource, currently serving as the Town's Senior Center and Council on Aging (COA) offices. In addition, town boards and committees often use the space for meetings and events. It is in the beginning stages of a 2-phase renovation: the first in 2016 to improve parking and handicap access both into the house and to its second floor, and the second to build an addition to provide additional space for meals and programs, as well as make some interior accessibility improvements. The second phase is not scheduled to begin for a few years. In 2002, using funds provided by a DEM grant, the town undertook an historic landscape restoration. This grant funded landscape improvements that are consistent with historical records. With recent work done at the site the some of this work has been altered. The Friends of the COA continue to care for the gardens.

On West Bare Hill Road Abraham Whitney, Jr. built Bowers Place, now called **Bowerbrook** which was built in 1774 with hand-pegged chestnut and white oak timbers grown on the grounds and cut at the sawmill on the brook to the north. The **Atherton-Whitney Farm** on Bolton Road is probably a part of the original land grant of the Lancaster Properties to the family (1694).

Road Island on Woodchuck Hill Road is the Joseph K. Willard house (Sturdy House) of revolutionary period, with 1807 additions. It is located on the original Liberty Turnpike, which was a toll road.

Enterprise

From 1784 to 1789, Colonel Henry Bromfield and 24 associates operated silver mine on the east slope of Oak Hill, south of Old School House Road. The mineshaft was driven 50 feet into the solid rock, sometimes by blasting and sometimes by heating the stone and throwing water on it. The mine was abandoned when the work yielded no silver.

One of the most heavily quarried areas is Pin Hill in Harvard, an area of about 75 acres. The area's carvers quarried the rock under a sharing arrangement that gave them access to the source and the preparation area. Each carver marked his own slate with an initial or mark for identification and then finished the stones according to his own style. A disastrous attempt was made in the 1840's to blast the slate away from the side of the hill instead of the more painstaking method of cutting it by hand. The result was mostly unusable rubble, and weakened slabs that could not withstand the weather.

The Oak Ridge Observatory, (aka the George R. Agazzi Station), established in 1933 is located on Pinnacle Road and operated the largest optical telescope east of Texas with a 61" Wyeth Reflector and 84 foot steerable radio telescope.. It was operated by the Harvard-Smithsonian Center for Astrophysics as a facility of the Smithsonian Astrophysical Observatory. The observatory was closed in August 2005.

Recreation

The “Harvard Trails” guide is a great resource with maps and descriptions of the trails on conservation lands. In general the trails are utilized by hikers, cross-country skiers, the Harvard Snowmobile Club and other members of SAMS (Snowmobile Association of Massachusetts), as well as by horseback riders, school groups, birders and other nature lovers. These trails include the following: Holy Hill, the old Dancing Ground of the Harvard Shaker community; Pin Hill, site of a unique slate quarrying area; the Scorgie-Tufts-Smith Land, with trails to Bare Hill Pond; Shaker Spring House (c.1855), part of the Shaker water system. The Bowers Springs-Bare Hill Wildlife Sanctuary, a joint project with the Town of Bolton, contains trails from which motorized vehicles are excluded. New trails have been added to include the Hoch Land and Deans’ Hill (part of Prospect Hill area) – Dean’s Hill is a well-used old woods road enjoyed by many. Additionally the Delaney Wildlife Management Area provides upland hunting, fishing, berry picking, canoeing and small boating. It is also a popular birding area.

In addition is Harvard Park, completed in December 2002. This privately-funded track and field facility is built on a 34-acre parcel of land that was purchased by the Town at Annual Town Meeting and is used for active recreation. Harvard Park includes the track, soccer fields, playgrounds, a garden trail, Frisbee golf course, and a memorial area.

The Recreation Trail, is a multi-use trail allowing residents on foot, bike, horseback, and other non-motorized means to safely travel between two major recreation areas, Depot Road / Ryan Land playing fields and Harvard Park on Lancaster County Rd. The trail was constructed in 2009 funded through CPA funds and the state Recreation Trails Program.

In 2015, the rough woodland path through the woods at Harvard Park was improved by installing a compacted graded trail with drainage that will allow use throughout the year by all.



G. Environmental Challenges

Development

Development significantly impacts open space and water supplies. Finding a balance between protection of land and water resources and developed land poses a major challenge both in Town and regionally. Currently, point source pollution, or dumping of toxins directly into wetlands and waterways has largely been controlled by Federal and State regulations that make it illegal and offer stiff penalties to violators. As a result, private and industrial waste is no longer being poured directly into wetlands and waterways. Non-point source pollution, from agricultural uses, development, and roadways, is now the greater threat to wetlands and surface waters.

One on the top priorities in the Executive Office of Energy and Environmental Affairs five-year plan is related to non-point source pollution (NPS). The United States Environmental Protection Agency and the Massachusetts Department of Energy and Environmental Protection identify NPS pollution as the leading source of water quality degradation. Every household plays a part in this type of contamination.

The most common household originated NPS pollutants are pesticides, bacteria, salts, oil, grease, toxic chemicals, and heavy metals. Inadequate septic systems, animal waste and large amounts of grass clippings, leaves, and other natural material also cause hazardous waste to get into the natural water supply. Other sources of NPS pollution in our region are soil eroded from construction sites, fertilizers from fields and lawns, metals and oil from automobiles, and road salts.

The more developed the area becomes, the greater these impacts are. Even if people do not live near wetlands, pollutants from each home find a way into surface runoff. This water reaches storm drains and eventually finds its way into wetland systems. Paved surfaces prevent water from percolating into the ground, cause runoff to accumulate and funnel into storm drains at high speeds. Quickly moving water can undermine banks and edges of roadways, moving silt and sediment into wetlands, causing them to fill in, damaging ecosystems, and impacting the lives of fish and other aquatic life. It is often difficult for Town boards to monitor outflow of storm drains because the Town does not currently have a map of the drainage system.

Pollution and traffic from an increased population may become more problematic as Devens reaches its full build out, and commercial development continues near the Harvard border of Boxborough. Dealing with air, noise, and light pollution, and storm water run-off poses a significant challenge throughout the area. Increased automobile traffic conflicts with recreational uses of the roads. Many bicyclists, runners, equestrians, and pedestrians use Harvard roads, which do not have sidewalks or shoulders.

Oil Contamination

Harvard currently has two active waste sites and three waste sites with temporary solutions. All sites have been reported to the Massachusetts Department of Environmental Protection. Historically, oil has been the most common contaminant in the Town's hazardous waste sites.

The Town of Harvard utilized a sanitary landfill until September of 1984 when it was closed. The location is now used as the Town Transfer Station.

Flooding

In 1996 the voters of the Commonwealth passed a ballot referendum that prohibited or restricted the use of certain types of traps and required a permit for the trapping of beavers. As result beaver populations spiked causing a rise in crop and road damage. A state licensed trapper has been active in Harvard since 2002, with approximately 193 beavers being trapped from 2003 to 2015. The removal of these beavers has not reduced their activity around culverts that are regularly blocked, and therefore require constant monitoring by the Department of Public Works.

In the spring of 2016, the Conservation Commission contracted Beaver Solutions™ to install a Flexible Pond Leveler™ in the William's Pond at the corner of Stow Road and Murray Lane. This device is designed to control the water level at the beaver dam without interference from the beavers. Plans are in the works for additional devices to be installed in other problem areas around Town.

While most associate beavers with the killing of trees, they are beneficial to the environment around us. As a keystone species beavers create valuable wetlands, improve flow and quality of water, recharge water aquifers and maintain better stream flow during droughts.

Erosion and Sedimentation

Most of Harvard's roadways are "country roads", meaning they were not constructed to engineering standards, and, thereby, making them susceptible to erosion in many locations. The lack of catch basins and improved roadway shoulders allows for washouts along the roadways and for sand sediment and debris to enter streams and wetlands.

The Installation of Mass Highway catch basin to collect the sediment and debris before it enters the wetlands and streams is the best answer. In addition, the installation of raised curves along the roadways would prevent washout. However, these solutions are very costly. The Highway Department has been addressing many problem washout areas by installing rip rap stone along the shoulders especially on hills to reduce washout. Using a state grant, a storm water system with catch basins has been installed along Pond Road to keep road salt and sediment from entering Bare Hill Pond.

Road Run Off and Winter Road Treatment

Road run off carries oil, salts and other pollutants directly into adjacent wetlands and waterways. In Harvard, winter sanding of Town and State road surfaces causes significant sandy sediments to fill wetlands. Allowing outflow to sheet across vegetated areas rather

than funnel directly into wetlands allows for absorption of particles and nutrients into the soil.

Water Pollution

Land-use patterns along Bowers Brook in Harvard are low-density residential settlement interspersed with agricultural land and protected open space. The threats to Bowers Brook water quality in Harvard include road runoff (asphalt, oil, salt, sediment), and concentrated residential development (fertilizers and pesticides from lawns, leaching from old septic systems), especially around Bare Hill Pond.

Surface waters returning to groundwater include recycled septic water so it is important that septic systems are monitored and upgraded when necessary. Underground fuel storage tanks represent the most serious potential source of water pollution and likewise require monitoring. Two hundred and fifty underground tanks were identified in 1986, but most have since been removed as a requirement of change of ownership of property. (201 tanks were removed from 1991-2001; 67 tanks were removed from 2002 – 2007; 9 tanks were removed from 2008 to the present; records of tank removals from 1986-1991 are unavailable.)

The main stem Nashua River from the confluence of the north and south branches in Lancaster to the Ice House Dam (10.6 miles) supports recreational uses for which there is intimate contact of the water with a possibility of ingestion by primary-contact recreational use, such as swimming or wading, and secondary-contact recreational use, such as boating and fishing. The recreational use status can change both downstream and upstream due to elevated fecal coliform counts, urban runoff, and increased turbidity as the Nashua winds its way through the region. The river has not been assessed for fish consumption. Clean up activities since the mid-1970s, however, have improved the ranking of many sections of the river to Class B making it suitable for recreational uses.

Land bordering the Nashua as it flows through Harvard is either in non-intensive agriculture or protected open space (Oxbow National Wildlife Refuge) so pollution from non-point sources of contamination is less of a concern. However, dense residential, commercial, and industrial areas upstream in Fitchburg and Leominster affect water volume and quality. The mainstream Nashua shows high phosphorus levels and some high bacteria counts. (Notable spikes in bacteria levels during summer and fall may be attributed to decreased dilution during summer months when tributary flows are lowest.) Treated wastewater accounts for about 30% of the Nashua River's summertime flow, making the river vulnerable to malfunctions at treatment facilities. Combined sewer outflows that carry both wastewater and storm water originating in upstream urban areas of the larger Nashua watershed also degrade water quality of the main stem. Polluted runoff and sedimentation is an increasingly serious issue in rapidly developing upstream communities. (*Nashua River Basin 1998 Water Quality Assessment Report*. DEP, DWM)

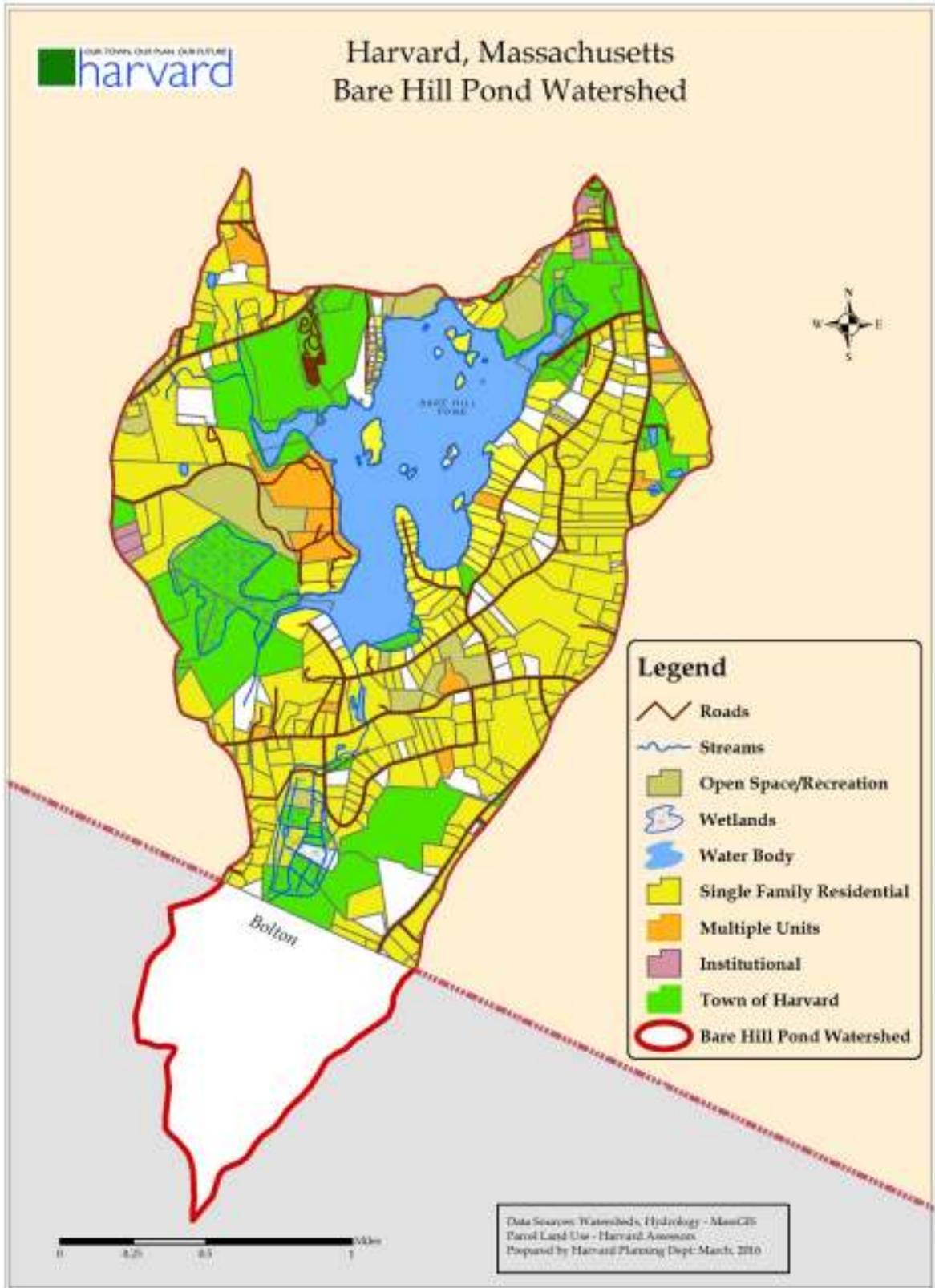
The Massachusetts Department of Public Health has issued a freshwater fish consumption advisory for Bare Hill Pond and Mirror Lake. Pregnant women, nursing mothers and children under 12-years old are advised not to eat Large Mouth Bass if caught in either of these water bodies due to mercury contamination. Both lakes support both primary and secondary recreational uses.

Bare Hill Pond

Bare Hill Pond is the largest and most prominent water body in Harvard. The greatest threats to Bare Hill Pond include shoreline development and high nutrient levels.

Arguably Harvard's most significant natural resource, Bare Hill Pond has had a history typical for Massachusetts ponds that became prime real estate first for summer camps and later for year-round residences. While much of the Pond's shoreline remains wooded, most of it appears to be developed. The rate of development accelerated from 1.1 units per year prior to 1931 to 1.7 units per year between 1931 and 1960, but has slowed considerably since then – now to less than one unit per year. Development in the past 10 years has largely involved reconstruction of existing homes and conversion of summer residences to year round use. There are numerous undeveloped parcels within the watershed of Bare Hill Pond. The Town itself owns a significant portion of the undeveloped land. If the Town's intention is to preserve its lands in perpetuity, then the Town should consider the adoption of additional restrictions to be put into place either through conservation restrictions or other deed restrictions

Shoreline development may have contributed significantly to water quality problems at Bare Hill Pond, which numerous water quality studies have documented, but studies also note that as a shallow man-made Pond that covered former sheep pasture, there is excessive nutrient loads in the Pond bottom that absent drawdowns would continue to endanger the water column. Weed problems had become acute by the mid-1950s, when approximately 100 camps or homes existed. By the late 1990's Bare Hill Pond was designated as endangered by the Massachusetts Department of Environmental Protection due to excessive phosphorous levels (0.44 mg/l) and invasive aquatic species (predominately milfoil, fanwort and water chestnut). Water quality has since improved due to a number of measures – deep drawdowns during winter, installation of storm water controls in Town Center and along Pond Road and mechanical and manual removal of invasive plants. The current phosphorous level has been reduced by roughly 50% from its historical high and is below the endangerment level (0.30 mg/l). In spite of these recent improvements to water quality, the need for yearly or biennial deep drawdowns will remain for the foreseeable future – along with annual monitoring of nutrient and invasive plant levels.



Map 4.2 – Bare Hill Pond Watershed

Insects and Disease

In the region as a whole, and in Harvard, three types of trees—elm, hemlock, and ash—are currently under attack by insects and disease, resulting in major declines in their populations.

Dutch Elm Disease, a fungus that attacks the water conducting part of the tree, has killed most American elms (*Ulmus americana*) and many other elm species. Harvard has an Elm Commission that has carefully monitored the situation for many years. They inject fungicide into trees on Town-owned land to protect against infection and are replacing dead elms with disease resistant varieties.

Hemlock Woolly Adelgid is an insect that has more recently moved into our region; it is killing native hemlock trees (*Tsuga canadensis*). Harvard has a large population of hemlocks in our forests, and the effect of the adelgid is very visible in certain areas of town such as Warren Avenue near the pond. Infestation is clearly visible because woolly white masses containing the eggs are present at the base of most needles, affected trees appear grey-green, and their foliage is thin. Trees generally succumb in one to four years. A minor infestation can be controlled by removing and burning infested branches or applying horticultural oil, insecticide soap, or other pesticides. In the wild, trees affected by Hemlock Woolly Adelgid are very difficult to treat. The loss of hemlocks in our forests will have a major effect on the forest ecosystem because hemlock are our primary shade tolerant evergreen tree.

Throughout the northeast and Midwest, a disease called “ash yellows” is believed to be responsible for the decline of *Fraxinus sp.*, especially white and green ash trees. The disease is caused by microbes and is thought to be transmitted by insects. Generally, it takes five to 10 years to kill a tree. There is no known cure for this blight, which has already made a significant impact on the woodlands of Harvard where dead and dying white ash trees are common. Ash is also vulnerable to the Emerald Ash Borer. Although not yet found in Harvard, EAB was discovered in Massachusetts in 2012, and nearby in Worcester in 2015.

Another potentially devastating insect on the horizon is the Asian Longhorned Beetle. It was discovered in Worcester in 2008, where to date almost 35,000 trees have been destroyed in an effort to contain the widespread infestation. As of 2015, officials believe the geographical extent of the current outbreak is known, but infested trees are still being removed within that area. ALB is a major concern because Worcester is at the edge of the Northern hardwood forest, a vast contiguous forest that includes Harvard. The ALB uses a wide variety of species as its host, including our many maples, and could change our forests and our town more dramatically than any other disease or pest to date.

Invasive Plants

The Massachusetts Invasive Plant Advisory Group (MIPAG) has listed 35 *Invasive* and 31 *Likely Invasive* species that have been found in Massachusetts. Many of them are present in Harvard, invading our forests, fields, streams and ponds. The most prevalent invasives in Harvard include:

Acer platanoides L. (Norway maple)
Ailanthus altissima (P. Miller) Swingle (Tree of heaven)
Alliaria petiolata (Bieb.) Cavara & Grande (Garlic mustard)
Berberis thunbergii DC. (Japanese barberry)
Celastrus orbiculatus Thunb. (Oriental bittersweet; Asiatic bittersweet)
Cynanchum louiseae Kartesz & Gandhi (Black swallow-wort)
Elaeagnus umbellata Thunb. (Autumn olive)
Euonymus alatus (Burning bush)
Frangula alnus P. Mill. (European buckthorn; glossy buckthorn)
Lonicera morrowii A.Gray (Morrow's honeysuckle)
Lonicera x bella Zabel [*morrowii* x *tatarica*] (Bell's honeysuckle)
Lythrum salicaria L. (Purple loosestrife)
Myriophyllum heterophyllum Michx. (Variable water-milfoil)
Myriophyllum spicatum L. (Eurasian or European water-milfoil)
Polygonum cuspidatum Sieb. & Zucc. (Japanese knotweed)
Rosa multiflora Thunb. (Multiflora rose)
Trapa natans L. (Water-chestnut)

The particularly fast spreading, *Polygonum perfoliatum* L. (Mile-a-minute vine), while not in Harvard has been found in neighboring Littleton.

Invasives supplant native plants -- species that are valued in their own right and that are critical components in their local ecosystems -- they redesign the landscape and can limit human access to open space. By 2008, invasives were clearly in evidence in natural areas and the conservation community was sounding the alarm about this threat to landscapes and biodiversity. In the 2008 Open Space and Recreation Survey respondents commented that Harvard "should take care of the open space we have," and local organizations concurred. Over the past eight years two major initiatives to control invasives in Harvard have been undertaken and recognized as exemplary models for other towns in the Commonwealth.

The first initiative has been ongoing in its current form since 2002 in response to non-native aquatic plants choking the waters of Bare Hill Pond. The Bare Hill Pond Watershed Management Committee (BHPWMC) has led a massive effort garnering research studies from consultants, funding from federal, state and town sources, requisite permits, plus public education and involvement to carry out storm water management in the watershed and annual drawdowns and hand weed-pulling in the pond to control the main culprits -- Eurasian milfoil, fanwort and water chestnut.

Initiatives to control invasives on land have been carried out by Fruitlands Museum, the Harvard Conservation Trust (HCT) and the Harvard Conservation Commission. Fruitlands Museum obtained WHIP grants from NRCS in 2011 and 2012 to mechanically remove and treat invasives in 32 acres of heavily infested field and brushland. The Trustees of Reservations has recently taken ownership of Fruitlands and the town has confidence that The Trustees have the resources, expertise and interest to pursue careful stewardship of those 200 acres of open space. The Harvard Conservation Trust, for its part, has utilized volunteers to mechanically remove invasives on their properties. In particular, bittersweet and honeysuckle on the Barba land, the same plus multiflora rose on the Brown land and all three of these targeted and removed on May's land.

Before



After



Invasive Removal on the Powell Land – E. Bare Hill Road

Harvard's Conservation Commission began its efforts in 2009 by authorizing a member to represent the town on the newly formed SuAsCo CISMA, an invasive plant consortium in the Sudbury, Assabet and Concord River watersheds. This consortium, with early leadership from Mass Audubon, National Park Service, US Fish & Wildlife, and New England Wildflower Society offered an exchange of information among land managers learning to control invasives, as well as training and guidance to its members. With this support and the revitalization of the Commission's Land Stewardship Subcommittee in 2010, planning to control invasives on town conservation land began to take shape.

Informed by habitat management recommendations for each of the town's major conservation areas from Mass. Division of Fisheries and Wildlife through the LIP program, we developed a three-year invasives control proposal and presented it to the town for funding through the Community Preservation Committee in 2011. \$50,000 was requested and after approval at Town Meeting in 2012, work began, focusing on common woody invasives in old orchards and fields on four core conservation areas – Powell, Williams, Great Elms and Clapp-Scorgie. Work was planned and managed by volunteer effort and carried out by invasives contractor, Polatin Ecological Services and Bruce Scherer of Heritage Fields. A combination of mechanical removal of trees and brush and focused herbicide treatments were utilized on all sites. As part of the project, educational presentations by invasives experts from New England Wildflower Society and UMass Extension were offered in town. In 2014 the project, which was achieving success in controlling invasives and bringing conservation lands to a point where they could be maintained by routine management, presented plans and a funding proposal for another three years of work. This also received town CPC support and is in progress with focus on three new conservation areas – Bare Hill Wildlife Sanctuary, Hermann Orchard and Dean's Hill.

Biannual reports to the CPC document the work completed to date on about 250 acres, but in general terms the objective has been to improve and restore wildlife habitat, protect native plants, make the land physically accessible to people, and preserve historic and active agricultural landscapes. In the case of the Clapp-Scorgie land, a tenacious invasive, black swallowwort has been particularly hard to suppress and has taught us to be quick to address it when we find it in new sites. This same conservation area was also badly infested with Japanese barberry and we made the effort to treat it after learning that deer ticks are 100 times more numerous around barberry, and the mice that shelter in it, than in a barberry-free woodlands. So, we can add public health to the list of reasons to control invasives.

One additional lesson learned from invasives, is the importance of consolidating larger areas of conservation land rather than smaller, scattered pieces of land that are vulnerable to invasives on abutting private land. We have seen the Maxant land along Bowers Brook become infested with invasives in the past ten years while the abutting land has been developed. This wooded wetland and floodplain habitat supports a special vernal flora, but because not enough of a forested buffer was set aside, it may not be feasible to protect it.

Once invasives are brought under some control on a piece of conservation land a protocol is developed to maintain the land by a combination of monitoring, mechanical removal, focused herbicide treatments and mowing at appropriate times and intervals. A log of field mowing on conservation land is now kept and over the next few years, land maintenance should become more routine as we learn what is effective and continue to practice more active management. This is the goal for the next phase of invasives management in town, to set up these routines, find dependable means to fund and carry out the work, continue to educate landowners and engage volunteers and the DPW to address roadside invasives.



**Volunteers from Vertex Pharmaceuticals
clearing invasives on the Brown land**

Climate Change

With a range of different scenarios forecast, the impact of climate change is uncertain in many ways. There is much debate about how quickly we will see the effects of climate change, but most agree that there will be greater frequency and severity of storm events, such that 50 or 100 year storm events will occur or are already occurring every 10 or so years. Although locally we are spared concerns about sea level rise, Harvard is a community with a large river and numerous streams, so we will need to consider storm water flow and flood levels. An increase in unusual or unpredictable weather events is also expected. Local farmers in particular will be vulnerable to unseasonable weather like early springs, late frosts, ice storms, and damaging hail. The challenge of maintaining working agricultural lands as part of Harvard's landscape will be increased, as farmers already struggle to be financially viable.

It is very likely that climate change will amplify a number of current environmental challenges like the spread of invasive species and loss of native plants and wildlife. Fluctuating weather patterns and unseasonal weather events will result in added stress to some native plant species. Stressed and weakened natives will be more vulnerable to various threats, whether deer browse or loss of pollinators, thus less able to compete with invasives. Changing climate is also likely to bring new diseases and insects to our area, further stressing native species and damaging agricultural crops.

Climate change will also impact the way people interact with the natural environment because of health concerns. Outdoor related health risks such as mosquito and tick borne illnesses are likely to increase. We already see a major health impact from Lyme Disease, and Lyme is projected to increase as warmer temperatures increase the tick population. Although we are currently north of the *Aedes aegyptii* mosquito range, this carrier of the Zika virus will come north as the climate warms, and the virus may, too. (*Aedes albopictus*, another mosquito which can transmit Zika, is already in Massachusetts, but is less apt to infect people because it also feeds on other animals.) The increase in atmospheric carbon dioxide seems to increase the overall vigor of poison ivy, and perhaps even the potency of urushiol oil in these plants, increasing the chance of exposure by residents using public open space, presenting a potential increased health risk. Unfortunately, health hazards associated with being outdoors may discourage participation in outdoor recreational activities, increase pressure for widespread use of dangerous pesticides, and may reduce public willingness to fund acquisition of open space.

At the same time, protection of undeveloped land will have added urgency as a repository of native species and intact ecosystems that can buffer the stressors of climate change – the warmer temperatures, erratic weather, drought, flooding, invasive plants and new insect pests. Protection of wetlands and floodplains (identified by FEMA and otherwise) with their capacity to absorb flooding and retain water in drought will also be important to protect human interests in water resources and the built environment.

The 2015 Massachusetts Wildlife Climate Action Tool, one of the resources contained in the MassWildlife Climate Change Initiatives report, can be found on the state's Executive Office of Energy and Environment Affairs (EEA) website. It could be a useful resource for the town in assessing and determining best practices in the face of climate change.



Wild Turkeys in April

Already climate change has resulted in unusual and severe weather events that have taken a toll on open spaces. More numerous ice storms and an October snowstorm ravaged conservation land by bringing down oak limbs weighed down before leaf-fall -- making for heavy work to keep trails open and leaving people feeling that the woods had been trashed and reduced in esthetic value. Similarly, winter thaws and spring freezes have significantly damaged peach and apple crops in town. Over time, the town's iconic orchards may not be able to adapt to the inconsistent weather of climate change, so this is another concern affecting open space that lies ahead.

Environmental Equity

As seen in map A.7, the distribution of open space is relatively uniform throughout the town (excluding Devens). Priority has been given to protecting environmentally sensitive areas (Map 4.1) as well as Bare Hill Pond and other water resources and wetlands (Map A.3).

Section 5: INVENTORY OF LAND

The Importance of Protecting Open Space

91% of the respondents to the 2016 Open Space and Recreation Survey (see Section 6B) indicated that they valued Harvard's open space "extremely" or "very much". Furthermore, 71% indicated they felt additional open space should be protected. When asked why they valued open space, the following reasons were rate as "important" to "very important":

- Protection of ground water
- Preserving plant and animal habitats
- Recreational use
- Gives the town a rural feeling
- Provides open vistas
- Protection of rare species
- Agricultural use

A detailed discussion of the link between open space protection and the above list can be found in Section 4.

Inventory of Land in Harvard

This section details the open space in Harvard – both protected and unprotected. Protected land includes all land that is protected from development by Article 97, Agriculture Preservation Restrictions, Conservation Restrictions and other means. It includes lands that are permanently protected by the Federal Government, Commonwealth, the Town, non-profit organizations or privately.

Unprotected land includes Municipal and Institutional land, which is vulnerable to development, as well as land held by the Harvard Conservation Trust and other non-profit organizations on which there is no Conservation Restriction. Other unprotected lands include those areas known as Chapter 61 land. These lands give a landowner the opportunity to reduce their property taxes in exchange for providing important benefits like clean water, wildlife habitat, rural character, wood products, food and outdoor recreation.

The Harvard Conservation Commission manages approximately 14% of the Town's 13,150 acres (not including the 3,395 acres within Harvard's historic boundaries at Devens). The Park & Recreation Commission manages 71 acres of land ranging from playing fields to the Town beach. An additional 1,138 acres (approximately 9%) are State or Federal conservation land including Bolton Flats, Delaney Wildlife Management Area and Oxbow National Wildlife Refuge.

Land Category	Acres	% of Harvard
Protected Open Space		
ConCom	1832	14%
Park & Rec	71	1%
Water & Sewer	18	0%
Federal & State	1138	9%
APR	202	2%
CR	534	4%
TOTAL Protected Open Space	3776	29%
Unprotected Open Space		
Chapter 61 (forest)	694	5%
Chapter 61a (agriculture)	1534	12%
Chapter 61b (recreation)	410	3%
Harvard Conservation Trust	273	2%
Non-profit Organizations	510	4%
Town - Bare Hill Pond	300	2%
Town - municipal & schools	161	1%
TOTAL Unprotected Open Space	3882	30%
TOTAL all Open Space	7658	58%
TOTAL all Harvard	13150	100%

A. Protected Land

Protected land is protected in perpetuity and can only be removed from this protection by a very complicated process. Protected land includes public land owned by the Conservation Commission, town land managed by the Water Commission, State land under the control of the Department of Fisheries & Wildlife or Department of Conservation Services, Federal land under the control of U.S. Fish & Wildlife Service (Oxbow National Wildlife Refuge), and private land having a Conservation Restriction or an Agricultural Preservation Restriction in perpetuity. (See Map A.8 - Open Space).



Town Land

The following inventory includes both Conservation Land and Park and Recreation Land. The Conservation parcels cannot be removed from protection without a vote of the Conservation Commission, a two-thirds vote of the Town Meeting, and a two-thirds vote of the State Legislature. The Conservation land ranges from undeveloped to agricultural. All is considered to be in good condition.

Owner/ Management Agency	Area/Parcel Name	Location	Acres	Uses	Condition	Recreation Potential	Public Access	Fund- ing	Protec- --tion	Zoning
ConCom	Abbot Access to BHWS	Bolton Road	0.43	1,2	1	5	Yes	5	1	AR
ConCom	Abbot Orchard	Bolton Road	8.66	1,2,3	1	5	Yes	5	1	AR
ConCom	Abbot Swampland	Woodside Road	1.50	1	2	5	No	5	1,4	AR,W
ConCom	Abbot-Reed-Powell	East Bare Hill/Bolton Road	32.89	1,2	2	5	Yes	1,2	1	AR
ConCom	Ayer Road Meadows	Ayer Road	23.90	1,3	2	1	Yes	1,2	1	AR,C,W, WFH
ConCom	Bamford Land	Murray Lane	1.60	1	2	1	Yes	5	1	AR
ConCom	Barba's Point	Bare Hill Pond	16.10	1,2	1	5	Yes	2	1	AR
ConCom	Barber Land	Shaker Road	27.73	1,2	1	2	Yes	5	1	AR,W,WFH
ConCom	Bare Hill Wildlife Sanctuary	Bolton Road	44.00	1,2	2	5	Yes	5	1,4	AR
ConCom	Barlett Land	Pattee Road	3.20	1	4	1,2	No	5	1	AR
ConCom	Barrett Land	Massachusetts Avenue	24.11	1	1	1	Yes	2,3	1,2	AR
ConCom	Barton 2	Woodside Road	1.97	1	3	1	No	1,2	1	AR,W
ConCom	Barton 3	Bowers Brook/Still River Road	15.40	1	3	1	No	5	1	AR, W
ConCom	Barton 4	Abuts Bowers Brook	23.80	1	2	1	Yes	5	1	AR,W
ConCom	Beth Hill Land	Bolton Road/Mass Ave	0.04	1	1	5	Yes	7	1	AR
ConCom	Black Pond	Littleton County Road	3.34	1,2	1	5	Yes	2	1	AR,WFH
ConCom	Black Pond Access	Littleton County Road	56.49	1,2	1	5	Yes	2	1	AR
ConCom	Blomflet	Ayer Road	29.42	1,2	2	5	Yes	2	1	AR,C
ConCom	BOCA Land	Old Shirley Road	3.90	1	2	1,2	Yes	5	1	AR
ConCom	Bowers Spring-Sprague	West of Bolton Road	18.90	1,2	2	5	Yes	1,2	1	AR
ConCom	Bowers Spring-Visockas	West of Bolton Road	24.09	1,2	2	5	Yes	1,2	1	AR,W
ConCom	Brewer Land	South of Herman Orchard	3.25	1,2	2	5	Yes	2	1	AR,W,WFH
ConCom	Brown Land	Glenview Drive/South Shaker Rd	3.49	1	2	1	Yes	5	1	AR
ConCom	Bull Land	Cruft Lane	0.66	1	2	1	No	6	1	AR,W,WFH
ConCom	Bush Land	I-495	6.10	1	2	1	Yes	2	1	AR, W
ConCom	Charles Atherton Case Land	Bolton Road	2.02	1	2	1	Yes	5	1	AR
ConCom	Carey Land	Still River Road	2.92	1,3	2	2	Yes	6	1	AR
ConCom	Clapp Land 1	Still River Road	37.61	1,2	2	2	Yes	5	1,4	AR
ConCom	Clapp Land 2 & 3	Willard Lane	8.00	1,2	2	2	Yes	5	1,4	AR,W
ConCom	Cobb Land 1	Oak Hill Road	4.50	1,2	2	2	No	5	1	AR
ConCom	Cobb Land 2	Oak Hill Road	2.52	1	2	1,2	Yes	5	1	AR
ConCom	Coke Land	Littleton Road	32.15	1,3	1	1	Yes	1,2	1	AR,W,WFH
ConCom	Colwell Land	Bolton Road	2.70	1	3	5	No	5	1	AR
ConCom	Corzine Land	Littleton Road	3.00	1,2	2	2	Yes	5	1	AR

Owner/ Management Agency	Area/Parcel Name	Location	Acres	Uses	Condition	Recreation Potential	Public Access	Fund- ing	Protec --tion	Zoning
ConCom	Daman Land	Brown Road	34.80	1	1	1	Yes	5	1	AR
ConCom	Dean's Hill	Prospect Hill Road	32.00	1,2	1	5	Yes	2,3	1,3	AR
ConCom	Dunlap	Old Littleton Road	33.68	1,2	1	2	Yes	5	1,2	AR
ConCom	Eastview (Elwell) Land	Ayer Road	8.53	1,2	1	2	Yes	2	1,4	AR
ConCom	Farnsworth Land	Willard Lane	39.00	1	2	5	Yes	6	1	AR, W
ConCom	Fuller Dudley Woods	Old Littleton Road	6.40	1,2	2	5	Yes	6	1,2	AR
ConCom	Fuller Dudley Woods 2	Old Littleton Road	3.81	1	2	1	Yes	3	1,2	AR
ConCom	Gillette/Horse Meadows	Sherry Road	20.04	1	2	1	Yes	2	1	AR,W,WFH
ConCom	Great Elms	Murray Lane	69.18	1,2	1	2	Yes	4	1	AR
ConCom	Griffin/Dutcher Land	Woodside Road	2.25	1	2	1	No	5	1	AR, W
ConCom	Hammershaimb Land	Woodchuck Hill/Route 111	1.10	1	3	5	No	5	1	AR
ConCom	Harvard Historical	Oak Hill/Old Boston Road	1.50	1	3	5	Yes	5	1	AR
ConCom	Haskell Land	Still River Road/Willard Lane	12.83	3	1	1	Yes	1,2	1,4	AR
ConCom	Haskell-Viles Swampland	Woodside Road	4.30	1	2	5	No	5	1	AR,W
ConCom	Herman Orchard	East of Ayer Road	50.00	1,2,3	1	5	Yes	1,2	1	AR
ConCom	Hoch Land	Still River Road	11.41	1,2	1	5	Yes	2,3	1,2	AR
ConCom	Holy Hill (A1)	Simon Atherton Road	8.70	1,2	2	5	Yes	1,2	1,4	AR,W,WFH
ConCom	Holy Hill (A2)	Shaker Road	4.65	1,2	2	5	Yes	1,2	1,4	AR
ConCom	Holy Hill (B2)	Ann Lee Road	9.38	1,2	2	5	Yes	5	1,4	AR
ConCom	Holy Hill (A4)	Simon Atherton Road	3.75	1,2	2	5	Yes	1,2	1,4	AR,W,WFH
ConCom	Holy Hill (A5)	Ann Lees Road	5.63	1,2	2	5	Yes	1,2	1,4	AR,W,WFH
ConCom	Holy Hill (A6)	Ann Lees Road	5.13	1,2	2	5	Yes	1,2	1,4	AR
ConCom	Holy Hill (A7)	Ann Lees Road	31.57	1,2	2	5	Yes	1,2	1,4	AR
ConCom	Holy Hill (A8)	Ann Lees Road	0.90	1,2	2	5	Yes	1,2	1,4	AR
ConCom	Holy Hill (B1)	Shaker Road	7.85	1,2	2	5	Yes	5	1,4	AR
ConCom	Holy Hill (B3)	Shaker Road	0.92	1,2	2	5	Yes	5	1,4	AR
ConCom	Holy Hill (C)	South Shaker Road	9.53	1,2	2	5	Yes	2	1,4	AR
ConCom	Holy Hill (D)	Shaker Road	9.89	1,2	2	5	Yes	5	1,4	AR
ConCom	Holy Hill/Shaker Meadows	Ann Lee Road	9.53	1,2	2	5	Yes	5	1,4	AR,W,WFH
ConCom	Holy Hill/Smith	Shaker Road	12.66	1,2	2	5	Yes	1,2	1,4	AR,W,WFH
ConCom	Horne Land	North of Still River Road	9.40	1	2	1	Yes	5	1	AR,W
ConCom	Hosking Point	Still River Road	1.70	1	2	1	Yes	2	1	AR
ConCom	Kaufmann Land	South Shaker Road	20.21	1,2	2	5	Yes	2	1	AR
ConCom	Klyce Land	Bowers Brook/Hermann Orchard	2.25	1	2	5	Yes	2	1	AR,W,WFH
ConCom	Kronauer Land	Sheehan Road	5.35	1	2	1	Yes	5	1,4	AR,W,WFH
ConCom	Locke Land	Green Hill Road	0.33	1,2	2	5	Yes	2	1,4	AR

Owner/ Management Agency	Area/Parcel Name	Location	Acres	Uses	Condition	Recreation Potential	Public Access	Fund- ing	Protec- --tion	Zoning
ConCom	Locroix	Green Hill Road	16.00	1,2	2	5	Yes	4	1	AR
ConCom	Luongo Land	Still River Road	26.48	1,2	2	2	Yes	2	1,4	AR,W
ConCom	MacKnight Land	Littleton Road	4.18	1,2	2	5	Yes	5	1	AR
ConCom	Maxant Land	Ayer/Lancaster County Road	19.04	1,2	2	5	Yes	5	1,4	AR,WFH
ConCom	Myrick Lane	Myrick Lane	0.34	1	3	5	No	6	1	AR
ConCom	Newick Land	Under Pin Hill Road	5.68	1	2	1	No	5	1,4	AR,W
ConCom	Newman 2	Prospect Hill Road	6.69	1	3	1	Yes	5	1	AR
ConCom	Old Littleton Meadow	Old Littleton Road	8.10	1,2	2	5	Yes	6	1	AR
ConCom	Old Mill Road	Old Mill Road	24.00	1,2	2	2	Yes	5	1,4	AR
ConCom	Pena/Fairbank	Brown Road	4.90	1	2	1	Yes	5	1	AR
ConCom	Perini Land A & B	Stow Road/I-495	36.29	1	2	1,2	Yes	2	1,4	AR
ConCom	Pin Hill/Cram Land	Harvard Depot Road	10.20	1,2	2	2	Yes	2	1	AR
ConCom	Pin Hill/Wilfert Land	Harvard Depot Road	4.68	1,2	2	2	Yes	1,2	1	AR
ConCom	Poitras	Willard Lane	13.37	1	2	5	Yes	2	1	AR
ConCom	Prospect Hill (Newman)	Prospect Hill Road	61.51	1,2	1	5	Yes	5	1	AR
ConCom	Rennie Land	Sheehan/Littleton Road	5.10	1	2	1	Yes	5	1	AR,W,WFH
ConCom	Reuben Reed Land	Ayer Road	1.77	1	2	5	Yes	5	1,4	AR
ConCom	Robb Land	Fairbank/Old Boston Road	5.35	1	2	5	Yes	5	1	AR
ConCom	Rodriguez Land	Hermann Orchard/Bowers Brook	7.86	1,2	2	5	Yes	5	1	AR,W,WFH
ConCom	Rodriguez Land 2	Cruft Lane	6.34	1,2	2	5	Yes	5	1	AR,W,WFH
ConCom	Rowe Land	Sherry Road	0.32	1	2	1,2	No	5	1	AR
ConCom	Russo Land	Granite View	21.13	1,2	2	5	Yes	5	1,4	AR
ConCom	Schmidt (Doebele) Land	Mill/Under Pin Hill Road	4.96	1,2	3	5	Yes	5	1	AR
ConCom	Scorgie Land	Still River Road	34.00	1,2	2	5	Yes	1,2	1	AR
ConCom	Shaker Road Land	Shaker Road	2.06	1	2	1,2	Yes	5	1	AR
ConCom	Shapley Land	Pinnacle Road	9.10	3	2	5	No	5	1,4	AR
ConCom	Sisters of St. Scholastica	Still River Road	7.81	1	2	2	No	2	1	AR
ConCom	Slattery Land#1	Abuts Coke land	5.00	1,2	2	5	Yes	5	1,4	AR
ConCom	Slattery Land#2	Stow Road	12.80	1	2	1	Yes	2	1,4	AR,W
ConCom	Smith Land	Oak Hill Road	2.51	1	2	1	No	5	1,2	AR
ConCom	Smith Land	Still River Road	3.50	1,2	2	5	Yes	1,2	1	AR
ConCom	Sprague Land #1	West Bare Hill Road	48.56	1,2	2	5	Yes	4	1	AR
ConCom	Sprague Land #2	West Bare Hill Road	5.50	1,2	2	5	No	4	1	AR
ConCom	Sprague Land #3	West Bare Hill Road	56.46	1,2	2	5	No	4	1	AR,W
ConCom	Stephenson #1	I-495	25.00	1,2	3	5	Yes	4	1	AR
ConCom	Stephenson #2	I-495	6.00	1,2	3	5	Yes	4	1	AR

Owner/ Management Agency	Area/Parcel Name	Location	Acres	Uses	Condition	Recreation Potential	Public Access	Fund- ing	Protec- --tion	Zoning
ConCom	Stephenson #3	I-495	10.80	1,2	3	5	Yes	4	1	AR,W
ConCom	Stephenson #4	Brown Road	0.22	1,2	3	5	Yes	4	1	AR,W
ConCom	Stephenson#5	Brown Road	11.10	1,2	3	5	Yes	4	1	AR
ConCom	Stone Land	Old Mill Road	6.00	1,2	2	2	Yes	2	1	AR
ConCom	Sturdy Land	Slough Road	10.23	1,2	2	2	Yes	5	1	AR
ConCom	Sullivan Land	South Shaker Road	9.53	1,2	2	5	Yes	1	1	AR
ConCom	Terry Land	Bare Hill Pond	7.38	1	2	5	Yes	5	1	AR,W
ConCom	Thurston's Cove	Warren Avenue	2.70	1	2	5	Yes	5	1	AR
ConCom	TOAD Land	Old Littleton Road	1.16	1	3	5	Yes	6	1	AR
ConCom	Town Forest	Poor Farm Road	2.20	1,2	2	5	Yes	4	1	AR
ConCom	Town Forest	Poor Farm Road	9.00	1,2	2	5	Yes	4	1	AR
ConCom	Town Forest	Poor Farm Road	29.00	1,2	2	5	Yes	4	1	AR
ConCom	Tripp Land	Brown Road	44.00	1,2	2	2	Yes	2	1,2	AR
ConCom	Tufts Land #1	Turner Lane	23.80	1,2	2	5	Yes	1,2	1	AR
ConCom	Tufts Land #2	Still River Road	15.00	1,2	2	5	Yes	1,2	1	AR
ConCom	Tully Land	Behind Ryan Athletic Fields	11.50	1,2	2	5	Yes	1,2	1,4	AR
ConCom	Vesenka Land	Littleton County Road	24.53	1,2	2	5	Yes	2	1,4	AR
ConCom	White Lane	White Lane	19.97	1	2	1,2	Yes	5	1,2	AR
ConCom	Willard Land	Willard Lane	48.50	1	2	1	Yes	3	1,2	AR
ConCom	Williams Land	Stow Road	64.25	1,2	2	2	Yes	1	1,4	AR,W,WFH
ConCom	Williams Pond	Stow Road	5.20	1	2	5	Yes	5	1	AR W,WFH
ConCom	Willow Road Land	Willow Road	2.85	1	2	1	Yes	6	1	AR
Park & Rec	Ann Lees Ball Field	Ann Lees Road	3.08	4	2	5	Yes	7	1	AR
Park & Rec	Charlie Waite Field	Lancaster County Road	5.05	4	1	5	Yes	7	1	AR
Park & Rec	Harvard Park/McCurdy Track	Lancaster County Road	13.93	1,2,4	2	5	Yes	7	1	AR
Park & Rec	Lower & Upper Depot / Ryan Field	Depot Road	30.33	4	2	5	Yes	7	1	AR
Park & Rec	Town Beach	Pond & Whitman Roads	18.34	1,5	3	5	Yes	7	1	AR
TOTAL			1902. 79							

Uses

- 1 = Conservation & Passive Recreation
- 2 = Trails
- 3 = Agricultural & Community Gardens
- 4 = Playing Fields

Condition

- 1 = Excellent
- 2 = Good
- 3 = Fair
- 4 = Poor

Recreational Potential

- 1 = Trails
- 2 = Agricultural & Community Gardens
- 3 = Playing Fields
- 4 = Play Ground
- 5 = None

Funding 1 = State/Federal

- 2 = Harvard Conservation Fund
- 3 = Community Preservation Act
- 4 = Other Municipal
- 5 = Gift
- 6 = Tax Taking
- 7 = Unknown

Protection

- 1 = Article 97
- 2 = Conservation Restriction
- 3 = Permit Conditions
- 4 = Deed Restrictions

Zoning

- AR = Agricultural/Residential
- B = Business
- C = Commercial
- W = Watershed Protection & Floodplain
- WFH = Watershed Protection & Flood Hazard

Conservation Restriction and Agricultural Preservation Restriction Land

Conservation Restrictions (CR) are deed restrictions that provide perpetual protection of privately owned open space. They are intended to keep the land in a natural, open, or scenic condition or in farming or forestry. Agricultural Preservation Restrictions (APR) occur when the development rights to a property are bought by a government agency or private, non-profit organization with the purpose of keeping the land in agriculture in perpetuity.

Owner	Location	Acres	Use	Restriction Held By	Public Access
Barrett	Littleton County Road	20.86	CR	HCT	Limited
Bilodeau	Murray Lane	6.60	CR	Town	None
Bilodeau	Murray Lane	16.88	CR	HCT	None
Camel Needle Eye Corp.	Ayer Road	31.3	APR	Town	Limited
Carlson Orchards	Old Littleton Road	12.77	APR	Town	Limited
Carlson Orchards	Old Littleton Road	17.56	APR	Town	Limited
Carlson Orchards	Oak Hill Road	18.90	APR	Town	Limited
Carlson Orchards	Pinnacle Road	7.00	CR	HCT	None
Coleman	Poor Farm Road	11.90	CR	HCT	Limited
Dickason	Still River Road	10.44	CR	Town	None
Dean's Hill	Depot Road	32.00	CR	HCT	Trails
Deer Run Realty Trust	Lancaster County Road	20.91	CR	Town	Limited
Dunlap	Old Littleton Road	4.40	CR	HCT	Trails
Dunlap	Old Littleton Road	29.28	CR	HCT	Trails
Dunlap	Old Littleton Road	3.54	CR	HCT	None
Endicott	Littleton County Road	30.66	CR	HCT	None
Ernst	Murray Lane	50.00	CR	HCT	None
Ernst	Murray Lane	13.50	CR	HCT	None
Fairway Partners	Trail Ridge Way	28.00	CR	Town	Limited
Franzen	Woodside Road	7.15	CR	Town	Trails
Fuller Dudley Woods (fka Dunlap)	Old Littleton Road	10.21	CR	HCT	Trails
Guswa	Old Meadow Lane	2.49	CR	HCT	None
Hoch	Still River Road	11.41	CR	HCT	Trails
Harvard Conservation Trust	Harris Lane	13.74	CR	HCT	Trails
Harvard Conservation Trust	Slough Road	3.08	CR	Town	Trails
Harvard Conservation Trust	Slough Road	4.19	CR	Town	Trails
KWW Harvard LLC	East Bare Hill Road	10.52	CR	HCT	None
Magoun	Old Meadow Lane	1.50	CR	HCT	None
Maxant	Willard Lane	2.67	CR	Town	None
Maxant	Willard Lane	20.47	CR	HCT	None
Mayerson/Shulman	Stow Road	9.05	CR	Town	Limited
Moran	Shaker Road	7.30	APR	Town	None
Moran	Shaker Road	27.70	APR	Town	None
Muller	Shaker Road	2.53	CR	HCT	None
Muller	Shaker Road	4.38	CR	HCT	None
Murphy	West Bare Hill Road	1.50	CR	HCT	None
New England Forestry	Shaker Road	24.32	CR	HCT	None
Pinnacle Hill Realty Trust	Old Meadow Lane	3.00	CR	Town	None
Saalfeld	Woodchuck Hill Road	7.89	CR	Town	None

Owner	Location	Acres	Use	Restriction Held By	Public Access
Smith	Littleton County Road	12.61	CR	Littleton Conservation Trust	None
Thayer	South Shaker Road	5.50	CR	HCT	None
Town of Harvard, Smith	Oak Hill Road	2.51	CR	HCT	None
Town of Harvard, Tripp	Brown Road	44.00	CR	HCT	Trails
Town of Harvard, White Lane	White Lane	19.97	CR	Town	Trails
Westward Orchard	Oak Hill Road	34.00	APR	Town	Limited
Westward Orchard	Littleton County Road	75.32	APR	Town	Limited
TOTAL		735.51			

CR= Conservation Restriction
APR = Agricultural Preservation Restriction

Commonwealth, Federal, and Town Land

The following inventory of lands are under the management and control of the Commonwealth, the Federal Government, or the Harvard Water & Sewer Commission.

The Delaney Wildlife Management Area comprises 580 acres within the towns of Harvard, Bolton, Stow, and Boxborough. It contains extensive wildlife and recreational resources and also serves as a flood control area for the Assabet Brook.

The Oxbow National Wildlife Refuge is located along the Nashua River and consists primarily of woodland, marsh, and oxbows of the Nashua River.

To the south of the Oxbow Refuge is the Bolton Flats Wildlife Management Area that extends into Bolton and Lancaster along the Nashua River and is administered by the Department of Fish and Wildlife. It consists of agricultural and undeveloped areas.

Since the closure of Ft. Devens, approximately 900 acres of wetlands and land along the Nashua River, north of Route 2, have been transferred to U.S. Fish & Wildlife Service for inclusion in the Oxbow National Wildlife Refuge. Should the Army declare the land south of Route 2 (South Post) excess, federal legislation requires its transfer to U.S. Fish & Wildlife Service.

Name	Use	Acres	Owned By	Managed By
Pinnacle Fire Tower	Fire Protection	0.25	Commonwealth	DCR
Bare Hill Pond Access	Pond Access	1.43	Commonwealth	DCR
Bolton Flats I	Trails/Wildlife Management	40.00	Commonwealth	DFW
Bolton Flats II	Trails/Wildlife Management	24.80	Commonwealth	DFW
Bolton Flats III	Trails/Wildlife Management	23.00	Commonwealth	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	662.00	Federal	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	8.70	Federal	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	24.00	Federal	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	4.70	Federal	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	4.10	Federal	DFW
Oxbow Wildlife Refuge	Trails/Wildlife Management	84.00	Federal	DFW
Delaney Wildlife I	Wildlife Management	146.00	Commonwealth	DFW
Delaney Wildlife II	Wildlife Management	115.00	Commonwealth	DFW
Town Reservoirs	Public Water Supply	16.00	Town of Harvard	W&SC
Town Well 1	Public Water Supply	1.12	Town of Harvard	W&SC
Town Well 2	Public Water Supply	0.78	Town of Harvard	W&SC
TOTAL		1155.88		

DCR = MA Department of Conservation & Recreation
 DFW = MA Department of Fisheries & Wildlife
 W&SC = Water & Sewer Commission

B. Unprotected Land

Unprotected land is land that could be developed without going through the complicated process of town meeting vote and Legislative approval. Unprotected land includes land owned by the Town, non-profit organizations, institutional properties and Chapter lands. The town-owned parcels below can be sold as surplus with a vote of town meeting.

Institutional and Non-Profit Land

Saint Benedict Center and the associated Sisters of the Slaves of the Immaculate Heart of Mary hold some of the most beautiful land in the Still River section of Town with sweeping views of the Nashua River valley. Community Harvest Project operates a 75 acre orchard on Prospect Hill Road which supplies food to Worcester County food banks. Across the road, Fruitlands Museum also provides expansive views of the Nashua River valley. These institutional holdings are a critical part of the character of the Town of Harvard, and must be diligently protected from significant alteration and development.

Name	Location	Acres	Managed By
Bromfield School/Library	4 Pond Road	6.80	Bromfield Trust
Chelmsford Housing Opportunities	105 Stow Road	4.04	Chelmsford Housing Opportunities
Chelmsford Housing Opportunities	Stow Road	1.29	Chelmsford Housing Opportunities
Community Harvest Project, Inc.	115 Prospect Hill Road	75.02	Community Harvest Project, Inc.
Congregational Church of Harvard U.C.C.	5 Still River Road	0.38	Congregational Church of Harvard
First Congregational Unitarian	9 Ayer Road	0.14	First Congregational Unitarian
Fellowship Building	7 Elm Street	3.20	First Congregational Unitarian
Fruitland's Museum	102 Prospect Hill Road	207.64	Fruitland's Museum
Fruitland's Museum	90 Prospect Hill Road	1.50	Fruitland's Museum
Harvard Boy Scouts	Westcott Road	9.48	Boy Scouts of America
Girl Scouts - Camp Eyrie	Still River Road	16.50	Montachusett Girl Scout Council Inc.
Girl Scouts - Camp Eyrie	Still River Road	3.20	Montachusett Girl Scout Council Inc.
Girl Scouts - Camp Eyrie	Still River Road	16.62	Montachusett Girl Scout Council Inc.
Girl Scouts - Camp Eyrie	Still River Road	2.10	Montachusett Girl Scout Council Inc.
Girl Scouts - Camp Eyrie	Still River Road	1.10	Montachusett Girl Scout Council Inc.
Girl Scouts - Camp Eyrie	69 Still River Road	12.24	Montachusett Girl Scout Council Inc.
Harvard Observatory	40 Pinnacle Road	37.32	President & Fellows of Harvard College
St. Theresa's Roman Catholic Church	17 Still River Road	1.02	Roman Catholic Bishop of Worcester
St. Theresa's Roman Catholic Church	15 Still River Road	2.79	Roman Catholic Bishop of Worcester
Sisters of St. Benedict Center	254 Still River Road	8.20	Sisters of St. Benedict Center
Slaves of IHM of St. Benedict	273 Still River Road	0.78	Slaves of IHM of St. Benedict Center Inc.
Slaves of the Immaculate Heart of Mary	282 Still River Road	2.63	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
Slaves of the Immaculate Heart of Mary	266 Still River Road	3.36	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
Slaves of the Immaculate Heart of Mary	275 Still River Road	7.40	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
Slaves of the Immaculate Heart of Mary	265 Still River Road	4.80	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
Slaves of the Immaculate Heart of Mary	Still River Road	0.92	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
Slaves of the Immaculate Heart of Mary	Still River Road	4.00	Sisters of St. Benedict Center & Slaves of the Immaculate Heart of Mary
St. Benedict Abbey	248 Still River Road	3.34	St. Benedict Priory
St. Benedict Abbey	252 Still River Road	8.20	St. Benedict Priory
St. Benedict Abbey	Still River Road	3.83	St. Benedict Priory
St. Benedict Abbey	246 Still River Road	1.30	St. Benedict Priory
St. Benedict Abbey	Still River Road	53.00	St. Benedict Priory
Village Nursery School	40 Poor Farm Road	3.54	Village Nursery School
Virginia Thurston Healing Garden	145 Bolton Road	2.16	Virginia Thurston Healing Garden
TOTAL		509.84	

Harvard Conservation Trust

The Harvard Conservation Trust (HCT) is a private, non-profit organization that has worked for many years to protect open space in Town. Because HCT can act faster than the Town to purchase land, the Town and the HCT work together to protect parcels of land that protect water, wildlife habitat, wetlands, and views, that contribute to the connectivity of other open space parcels.

Name	Location	Acres
Barba	23 Still River Rd	2.50
Barba	Still River Rd	1.14
Barba/Terry/Oyler	Willow Rd	15.73
Brehm	Off Stow Road	13.56
Brown	53 Murray Ln	35.16
Brown	Codman Hill Rd	6.80
Case	Off Woodside Road	3.20
Coke	Whitney Road	13.54
Coke	Whitney Road	6.57
Dolan/Mason	Off Slough Road	10.35
Galeota	Littleton Road	9.90
Goodwin/Woods	Slough Road	1.27
Harris	Still River Road	13.74
Hill	Bolton Road	2.66
Levison	East Bare Hill Road	37.10
May's Easement	West Bare Hill Road	14.81
Muller	Littleton County Road	31.02
Newsham	Littleton Road	3.01
Newsham	Littleton Road	4.10
Ohlin	Poor Farm Road	25.50
Olyer	Still River Rd	0.73
Porter	West Bare Hill Road	5.09
Reed/Davis/McClellan	Off Stow Road	8.90
Ring	Warren Avenue	1.70
Ward	Old Littleton Road	5.00
TOTAL		273.08

Town-Owned Land

The following table contains the inventory of Town-Owned unprotected land. Some of the unprotected land owned by the Town is used for educational and municipal purposes.

Name	Location	Acres	Managed By
Ayer Road Land	Ayer Road	0.41	Board of Selectmen
Bare Hill Pond	Pond Road	300.00	Board of Selectmen
Bare Hill Pond Dam	Pond Road	0.28	Board of Selectmen
Bellevue Cemetery	Still River Road	10.60	Cemetery Commission
Barton Land	Under Pin Hill Road	8.40	Board of Selectmen
Bromfield House	Mass Avenue	1.90	School Committee
Bromfield School	Mass Avenue	21.00	School Committee
Center Cemetery	Mass Avenue	3.50	Cemetery Commission
Elementary School	Mass Avenue	6.50	School Committee
Elementary School	Fairbank Street	2.24	School Committee
Fire Pond	Scott Road	1.85	Fire Department
Fire Station	Still River Road	0.60	Fire Department
Fire Station	Elm Street	1.61	Fire Department
High School Parking Lot	Mass Avenue	2.55	School Committee
Highway Garage	Depot Road - Harvard	10.18	Department of Public Works
Hildreth House	Elm Street	5.66	Council on Aging
Gravel Pit	Stow Road	13.48	Board of Selectmen
Little Common	Fairbank Street	0.14	Park & Recreation Commission
Mass Avenue Lot	Mass Avenue	1.31	Board of Selectmen
Mill Road Land	Depot & Mill Road	0.23	Board of Selectmen
Old Library	Fairbank Street	0.17	Board of Selectmen
Public Safety Building	Ayer Road	1.50	Department of Public Works
Shaker Cemetery	South Shaker Road	0.85	Cemetery Commission
Shirley Bridge	Shirley Road - Devens	0.85	Board of Selectmen
Small Land	Mass Avenue	24.00	School Committee
Still River Lot	Still River Road	4.00	Board of Selectmen
Town Hall & Common	Ayer Road	4.40	Board of Selectmen/Park & Recreation Commission
Traffic Island	Still River Road	0.42	Board of Selectmen
Traffic Island	Littleton Road	0.88	Board of Selectmen
Warlia Land	Stow Road	31.68	Board of Selectmen
TOTAL		461.19	

Chapter Land

Privately owned land classified as Chapter land is so classified as an incentive against immediate development by providing a reduction in the tax rate. However, these classifications offer no permanent protection. A land owner can reclassify the land at any time. The Town has the first option to purchase this land when the land is made available for sale and is being removed from the special tax classification as part of the sale. These purchases can be costly and the Town has limited time to respond. (See Map A.6).

Forest Land (Chapter 61)

Lands in this inventory are those that are growing forest products, including wood, timber, Christmas trees and other products produced by forest vegetation.

Name	Location	Acres
16 WBHR Trust	16 West Bare Hill Rd	11.71
A. Rathore 2012 Rev. Trust	32 Mettacomett Path	12.03
Beale, Nat & Sniffen, Julie	89 Old Shirley Rd	26.00
Bobzin, Jeffery & Ruth	76 Old Mill Rd	15.51
Brittain, Scott & Jennifer	283 Littleton County Rd	10.00
Callahan Realty Trust	168 Bolton Rd	15.30
Case, Richard D	211 Bolton Rd	10.30
Case, Richard D	Bolton Rd	17.90
Endicott, Priscilla	44 Littleton County Rd	25.28
Ernst, Ruth B	Murray Ln	46.27
Fredrick Realty Trust	Old Schoolhouse Rd	4.22
Fredrick Realty Trust	Old Schoolhouse Rd	14.00
Galeski, James S & Lorelei G	28 Shaker Rd	15.82
Getty, Ronald M & Marian J (Getty) Kreeb	72 Mass Ave	26.95
George, Peter C & Susan M	178 West Bare Hill Rd	10.00
Gibson, Gordon S	Mettacomett Path	1.20
Gibson, Gordon S	Jacob Gates Rd	8.07
Gibson, Gordon S	Jacob Gates Rd	4.41
Gibson, Gordon S	Mettacomett Path	5.72
JF Panek Investment Trust	Tahanto Trail	2.39
JF Panek Investment Trust	Warren Ave	1.89
Katz, Isadore T & Christine A Schaffer-Katz	129 Ayer Rd	13.10
Lot 361 Trust	West Bare Hill Rd	2.10
Lot 361 Trust	West Bare Hill Rd	2.29
McCarthy Realty Trust	306 Ayer Rd	13.00
Mead, Jonathan & Amy	163 Littleton Rd	10.95
Nestler, Eric G. & Margaret Coyle	31 Cruft Lane	28.43
Rathore, Amin & Nahid	Jacob Gates Rd	19.52
RB Realty Trust	Mass Ave	24.11
Shaw, Joseph A.	Littleton Rd	15.50
Smith, Robert Bruce & Gail E	281 Littleton County Rd	10.00
Setzco, Walter	Old Shirley Rd	0.90
Setzco, Walter	Old Shirley Rd	7.50

Name	Location	Acres
Setzco, Walter	Old Shirley Rd	1.90
Setzco, Walter	Old Shirley Rd	3.70
Shutt Family Limited Partnership	Littleton Rd	11.90
Shutt Family Limited Partnership	Littleton Rd	4.35
Shutt Family Limited Partnership	Whitney Rd	2.42
Smith, Paul Eugene Jr Investments	Whitcomb Ave	12.79
Three Three Six Realty Trust	Stow Rd	19.30
Town of Harvard, Willard Land	Bare Hill Pond	48.50
Tracey, Daniel & Melissa	Shaker Rd	19.90
Turtle Rock Realty Trust	30 Cruft Lane	4.50
Turner, Arthur S & Robert F	Turner Lane	11.74
Turner, Keith & Mary Vesenka	247 Littleton County Rd	10.00
Two Eighty One Still River Trust	281 Still River Rd	25.50
Warren, Carl & Sara	Sheehan Rd	20.00
Warren, Carl & Sara	Sheehan Rd	26.00
Warren, Carl & Sara	Sheehan Rd	1.21
Warren, Carl & Sara	Sheehan Rd	4.17
Warren Family Trust	52 Lancaster County Rd	31.50
Whitcomb Road Realty Trust	Brown Rd	1.63
Whitcomb Road Realty Trust	Brown Rd	0.31
TOTAL		693.69

Agricultural Land (Chapter 61A)

Lands in this inventory are those that are growing agricultural or horticultural products, including fruits, vegetables, ornamental shrubs, timber, animals, and maple syrup.

Name	Location	Acres
Arnold, Timothy & Sarah	57 Old Mill Rd	25.64
Berwind Brothers LLC	309 Ayer Rd	51.20
Bilodeau, Sean	9 Murray Ln	16.88
Blue Moon Farm, LLC	87 Depot Rd	6.22
Bobzin, Jeffery & Ruth	76 Old Mill Rd	13.99
Callahan Realty Trust	168 Bolton Rd	5.00
Camel Needle Eye Corporation	0 Ayer Rd	31.30
Carlson Orchards Inc	Littleton County Rd	33.38
Carlson Orchards Inc	Pinnacle Rd	1.88
Carlson Orchards Inc	Old Littleton Rd	12.77
Carlson Orchards Inc	Old Littleton Rd	17.56
Carlson Orchards Inc	Littleton County Rd	6.08
Carlson Orchards Inc	Littleton County Rd	0.19
Carlson Orchards Inc	115 Oak Hill Rd	31.80
Carlson Orchards Inc	Oak Hill Rd	2.11
Carlson Orchards Inc	Oak Hill Rd	19.00
Carlson Orchards Inc	Pinnacle Rd	7.00
Chipmar LLC	Mass. Ave	39.46
Community Harvest Project	115 Prospect Hill Rd	75.02
Cutler, Mary Morgan Rev Trust	East Bare Hill Rd	34.37
Cutler, Philip C & Mary M	East Bare Hill Rd	4.60
Cutler, Philip C & Mary M	56 Stow Rd	12.16
Davis, Charles & Patricia	Still River Rd	23.58
Durrant, David & Pamela	159 East Bare Hill Rd	7.00
Ernst, Ruth B Residence Trust	Murray Ln	3.73
Ernst, Ruth B Residence Trust	41 Murray Ln	12.00
Evans Home Trust	284 Still River Rd	74.52
Fehlberg, Ralph & Laura	42 Bolton Rd	11.06
Fifty Three Willard Lane Trust	53 Willard Ln	12.00
Frazer, Alan & Candace	157 Bolton Rd	10.00
Grady, John	43 Slough Rd	12.12
Heudorfer, John & Barbara	Stow Road	4.58
Hoffman, Linda	Eldridge Rd	0.69
Hoffman, Linda	38 Eldridge Rd	12.28
Horowitz, Adam & Evelyn	53 Woodchuck Hill Rd	11.10
IAFT LLC	62 Old Mill Rd	24.50
Kerns, William & Sharon	112 Bolton Rd	22.95
KWW Harvard LLC	East Bare Hill Rd	10.52
KWW Harvard LLC	2 Brown Rd	72.00
Latham, David & Virginia	Old Littleton Rd	5.00
Latham, David & Virginia	140 Old Littleton Rd	4.97

Name	Location	Acres
LDPL LLC	Ayer Rd	63.01
Lee, Dolores M Trust of 1993	170 Prospect Hill Rd	5.40
Lee, Douglas K Trust of 1993	Prospect Hill Rd	7.67
Lewis, William & Dorene	56 Westcott Rd	8.12
Lewis, William & Dorene	Mettacomett Path	2.51
Lochiatto, Carl & Victoria	42 Old Mill Rd	22.50
Matheson Family Trust	Shaker Road	3.80
Maxant, William T Conservation Trust	33 Willard Ln	18.97
McCready, Scott & Ann Palermo	118 West Bare Hill Rd	13.00
McLaughlin Family Trust	181 Old Littleton Rd	6.00
McLaughlin, Sean	132 Ayer Rd	48.00
Molnar, Richard	298 Old Littleton Rd	14.00
Moran, Robert & Terry	Shaker Rd	7.30
Moran, Robert & Terry	Shaker Rd	6.02
Moran, Robert & Terry	Shaker Rd	27.70
Mylykangas, Timothy	64 Westcott Rd	9.91
Nigzus, Steve & Triantaris, George	26 Madigan Ln	10.73
Nigzus, Steve & Triantaris, George	25 Madigan Ln	4.00
Rice, Philip & Beth	199 Still River Rd	19.66
Shappy, Linda & Russell	14 Whitney Ln	12.08
Shives, Raymond & Sarah	232 Still River Rd	14.80
Sisters of St Benedict Center	Still River Rd	43.00
Skauen-Hinchliffe, Deborah	221 Still River Rd	10.78
Stone Realty Trust	Ayer Rd	19.00
Three Penny Farm LLC	Old Littleton Rd	3.20
Three Penny Farm LLC	Old Littleton Rd	30.56
Three Penny Farm LLC	Old Littleton Rd	2.05
Three Penny Farm LLC	Old Littleton Rd	0.33
Two Eighty Five Still River Trust	Still River Rd	9.04
Van Derwerf, Mark & Debra	6 Old Schoolhouse Rd	5.00
Vesenska Family Trust	Littleton County Rd	9.87
Westward Orchards Inc	Oak Hill Rd	25.15
Westward Orchards Inc	146 Littleton County Rd	73.82
Westward Orchards Inc	90 Oak Hill Rd	32.50
Westward Orchards Inc	Slough Rd	1.50
Westward Orchards Inc	188 Mass Ave	4.00
Westward Orchards Inc	178 Mass Ave	1.50
Westward Orchards Inc	Mass Ave	56.00
Whitney Lane Farms LLC	Whitney Ln	12.06
Whitney Lane Farms LLC	Whitney Ln	8.80
Whitney Lane Farms LLC	36 Littleton County Rd	29.65
Willard Family Realty Trust	218 Still River Rd	15.50
Wilson, Philip & Beth	Still River Rd	8.25
Wilson, Philip & Beth	327 Still River Rd	6.66
Zero Ayer Road Trust	Ayer Rd	18.81

Name	Location	Acres
TOTAL		1534.42

Recreational Land (Chapter 61B)

Land in this inventory is open space and/or recreation.

Name	Location	Acres
Combs, Jennifer Malloy	35 Oak Hill Rd	8.45
Corbett Realty Trust	214 Littleton Rd	22.22
Delaney, John & Rajunas, Susan	243 Old Littleton Rd	7.21
Delker Brothers Land Management LLC	Ayer Rd	12.57
Dziewonski, Adam	Old Littleton Rd	6.50
Ferguson, Daniel & Anne	39 Glenview Dr	6.00
Fitzgerald, Diane & LeRoy, Russell	68 South Shaker Rd	5.10
Garofalo, Heidi J & Louis A	33 Prospect Hill Rd	6.60
Garofalo, Heidi J & Louis A	Prospect Hill Rd	1.90
Gormley, J Thomas III & Jenny	46 Warren Ave	4.10
Gormley, J Thomas III & Jenny	Warren Ave	4.65
Gorss, Charles G	99 Old Littleton Rd	5.70
Howard, Brent & Gehrig, Amy	67 Prospect Hill Rd	1.86
Howard, Brent & Gehrig, Amy	Prospect Hill Rd	4.45
Leicher, Bruce & Ellen	58 Warren Ave	2.80
Leicher, Bruce & Ellen	Warren Ave	2.80
Ludwig, Donald E & Holmes, Kathleen	23 East Bare Hill Rd	5.00
Moulton, Lynda	308 Old Littleton Rd	7.01
Noyes, Francis P III & Cathryn A	88 East Bare Hill Rd	10.00
Oak Meadows Way LLC	169 Littleton County	17.55
Oak Meadows Way LLC	175 Littleton County	37.07
Oak Meadows Way LLC	181 Littleton County	9.17
Parkinson, Phyllis T	211 Old Littleton Rd	3.00
Parkinson, Phyllis T	Old Littleton Rd	1.50
Parkinson, Phyllis T	Old Littleton Rd	1.50
Shaw, Patricia S	8 Cruft Ln	7.20
Snyder, John K & Julie S	97 Woodside Rd	20.00
Tefield Group LLC	Shaker Rd	8.91
Tefield Group LLC	Shaker Rd	39.02
Tefield Group LLC	Sheehan Rd	115.48
White, Patricia W	162 East Bare Hill Rd	7.00
Woodchuck Hill Realty Trust	Woodchuck Hill Rd	17.43
TOTAL		409.75

Section 6: COMMUNITY GOALS

A. Description of Process

Input from the community was solicited via an on-line survey (see Appendix 1) available through a link on the Town's website. It was also available in paper form from the Town Conservation Agent. The survey was advertised in the local newspaper, on the Town's website, through Nextdoor Harvard, Harvard's Cable Access and several list serves.

The survey was conducted from May 6, 2016 to May 27, 2016. The survey consisted of thirteen questions and the ability for the respondent to add additional comments. There were 583 responses to the survey. The responses are summarized below.

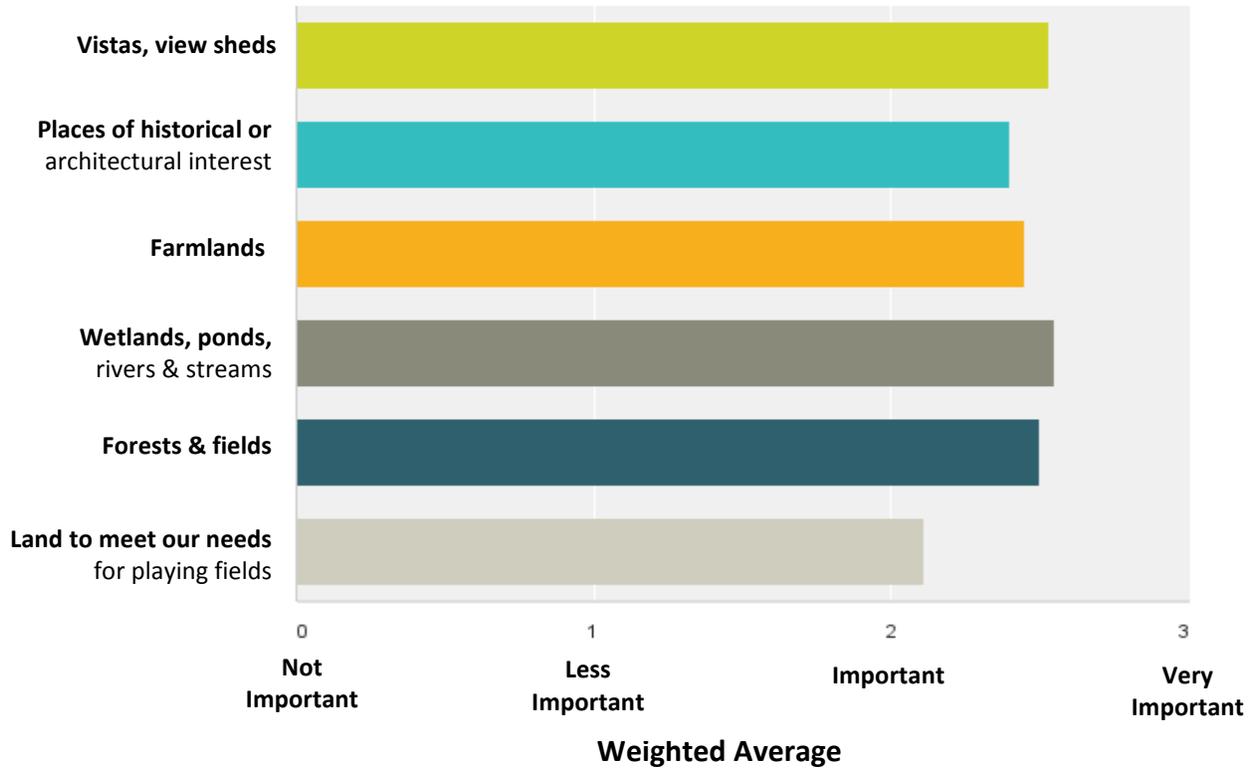


Public announcement in the *Harvard Press*,
May 6, 2016.

B Open Space and Recreation Survey Results

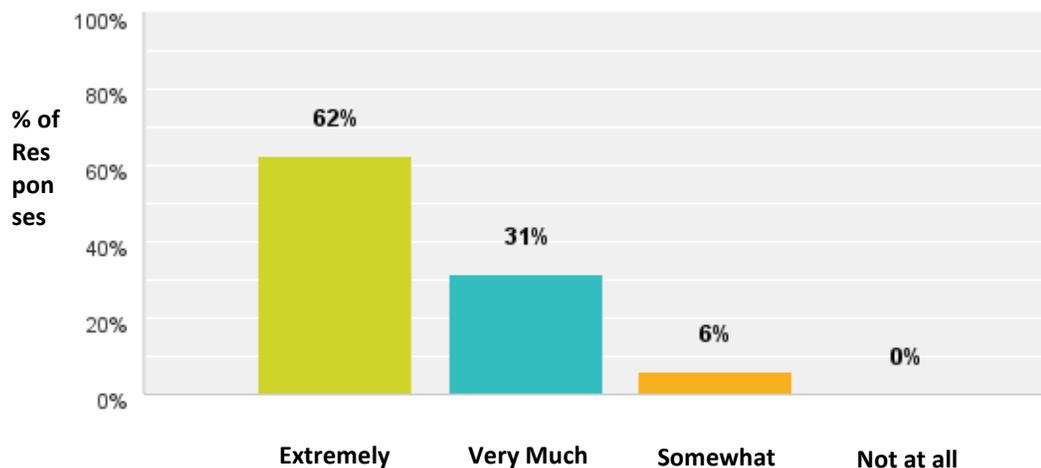
Q1 How important to you is it to preserve each of the following:

Answered: 580 Skipped: 3



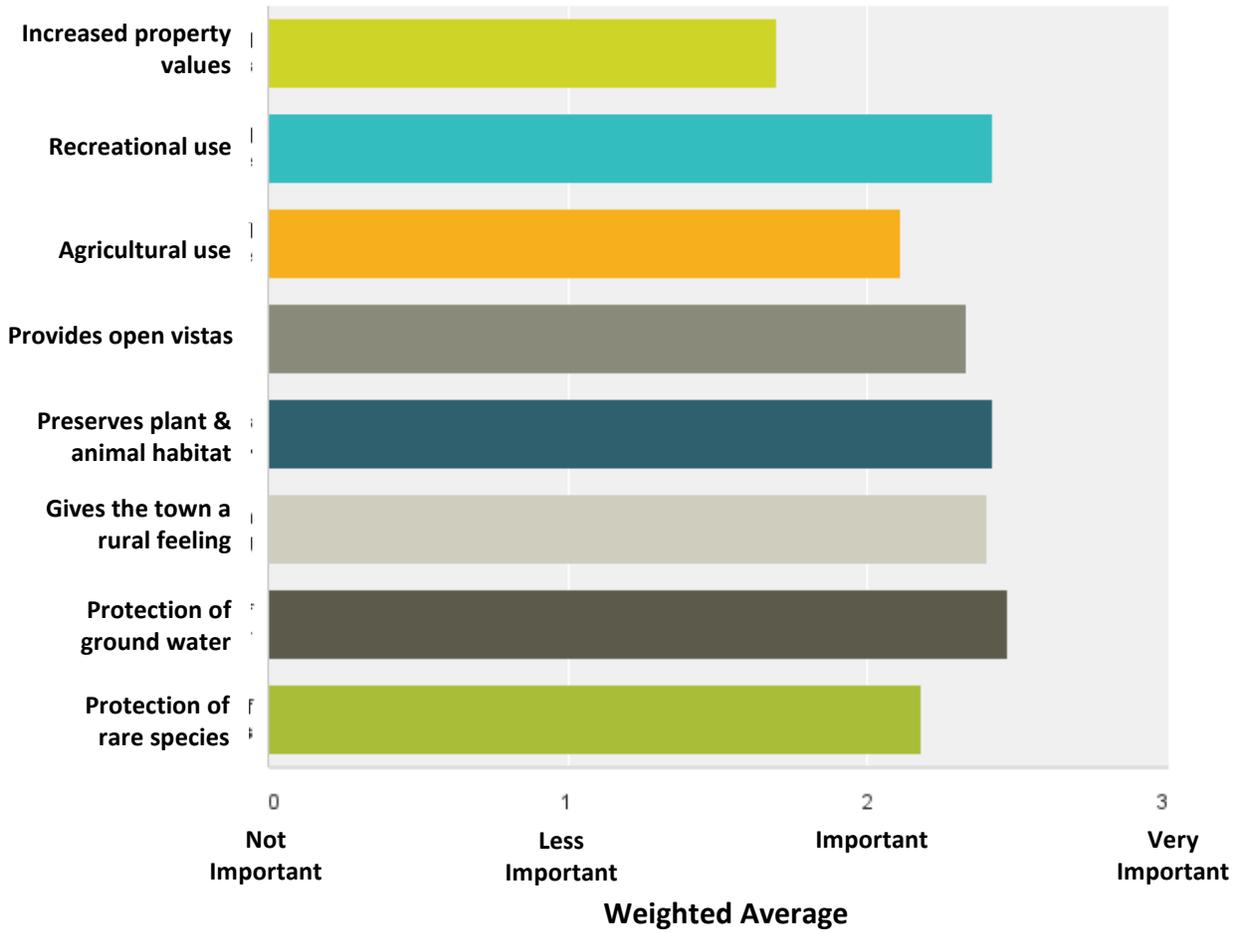
Q2 How much do you value open space in Harvard?

Answered: 580 Skipped: 3



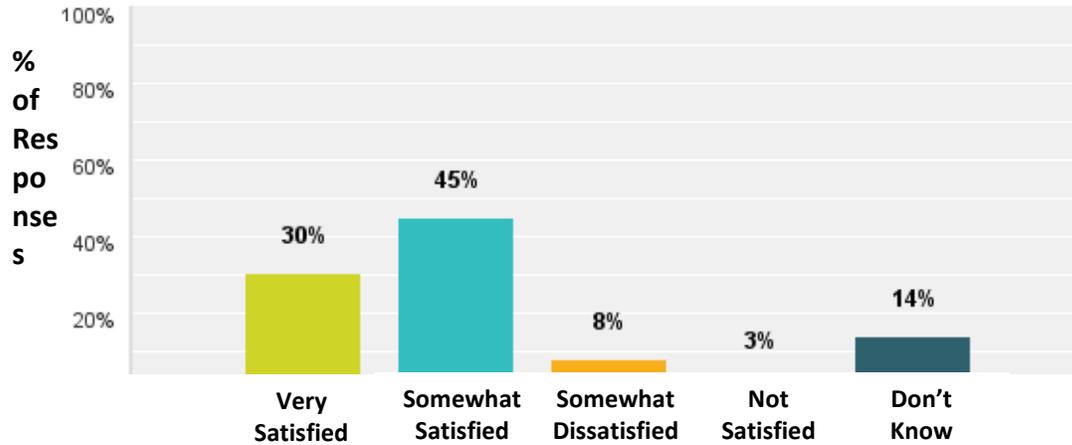
Q3 Why do you value open space?

Answered: 562 Skipped: 21



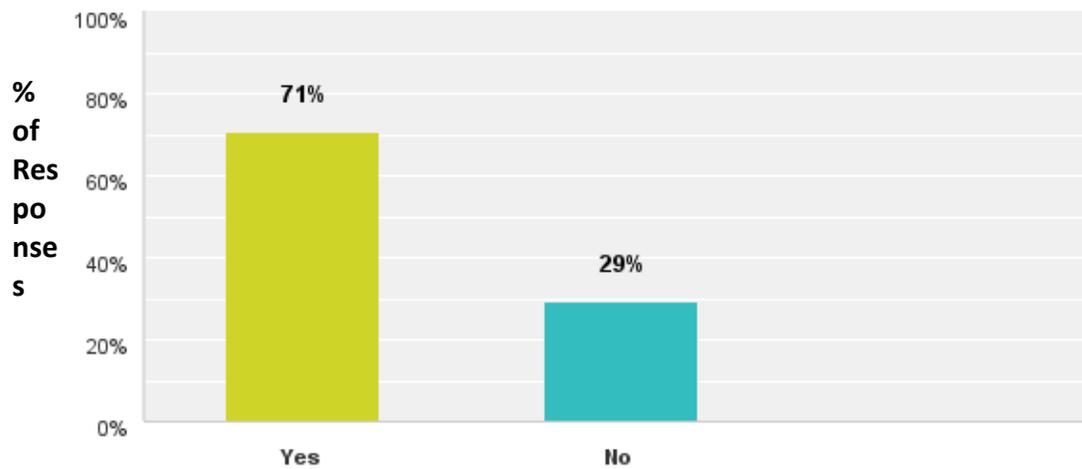
Q4 How satisfied are you with the Town's initiatives for protecting open space in Harvard?

Answered: 558 Skipped: 25



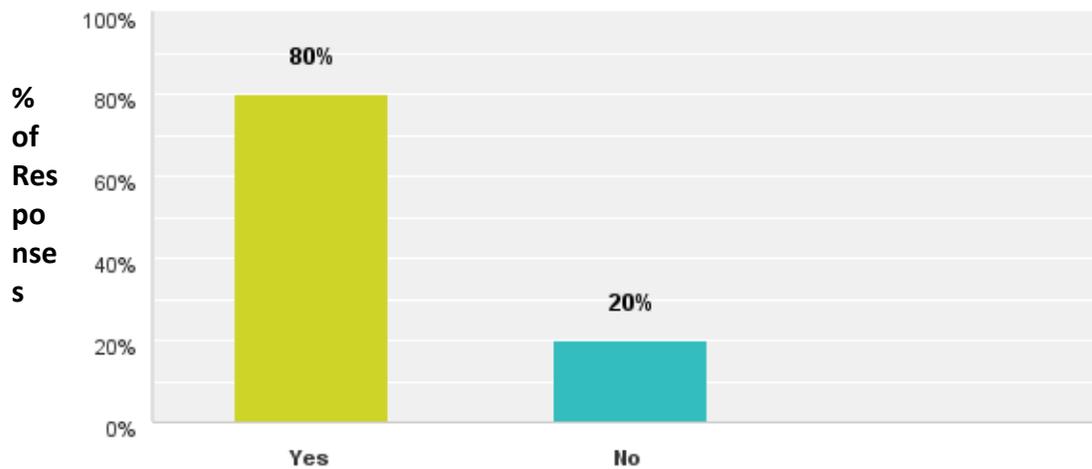
Q5 Currently the Town has approximately 20% of its land permanently protected. Do you believe more land should be protected?

Answered: 546 Skipped: 37



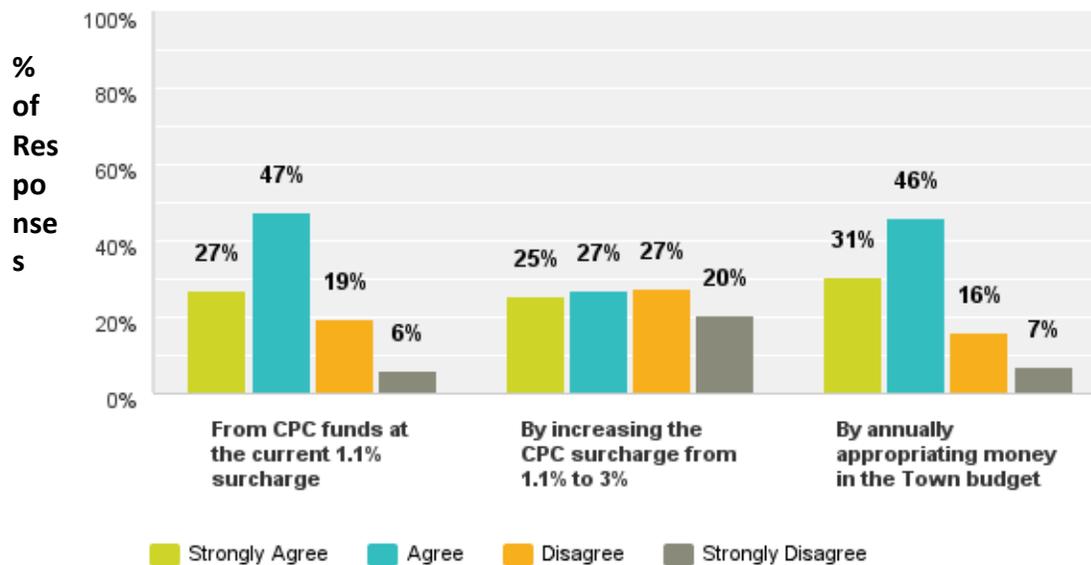
Q6 Should the Town Meeting establish an Open Space Fund for future land acquisitions?

Answered: 520 Skipped: 63



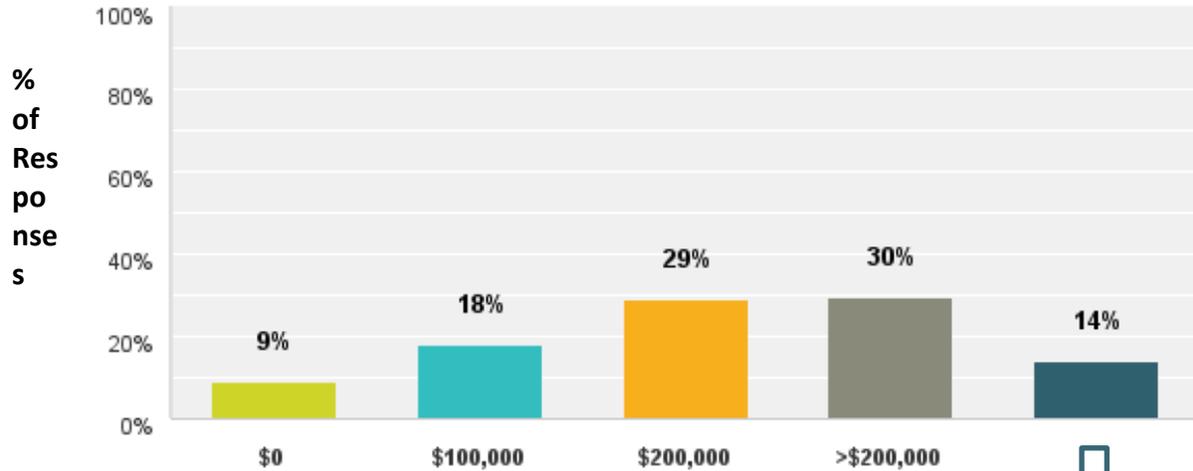
Q7 How should an Open Space Fund be funded?

Answered: 520 Skipped: 63

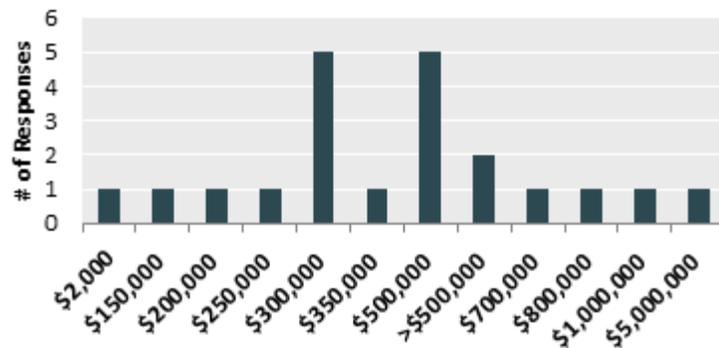


Q8 How much annual funding should be appropriated for an Open Space Fund?

Answered: 476 Skipped: 107

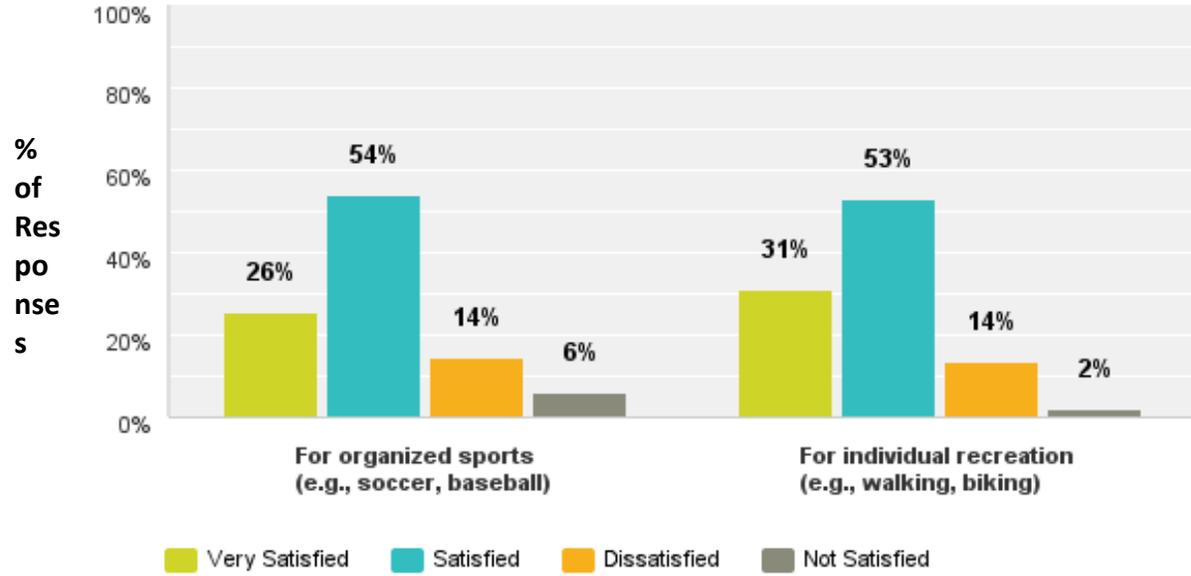


At a level needed to assure Open Space Fund has \$ _____



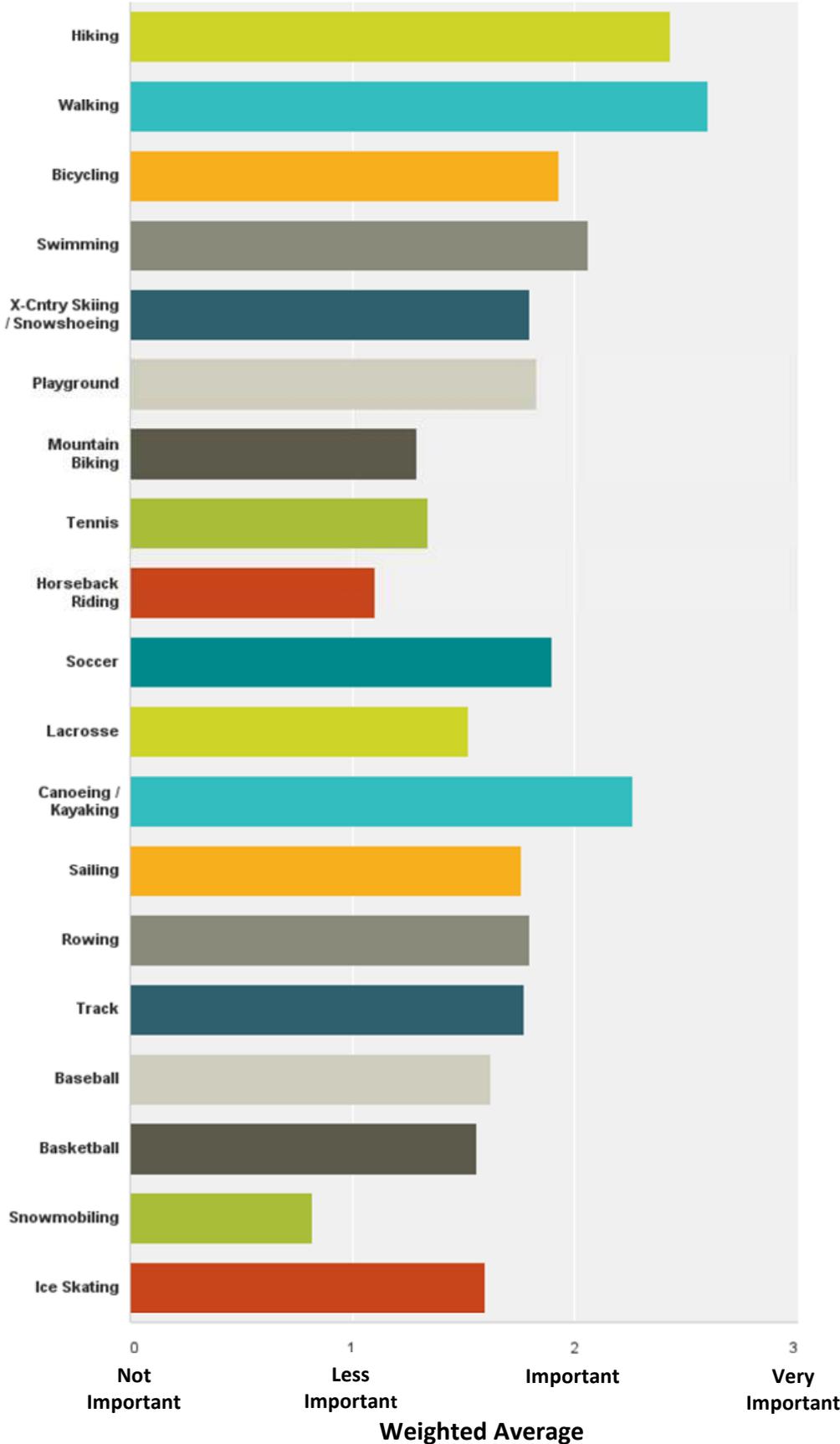
Q9 How satisfied are you with places for recreation in Town?

Answered: 521 Skipped: 62



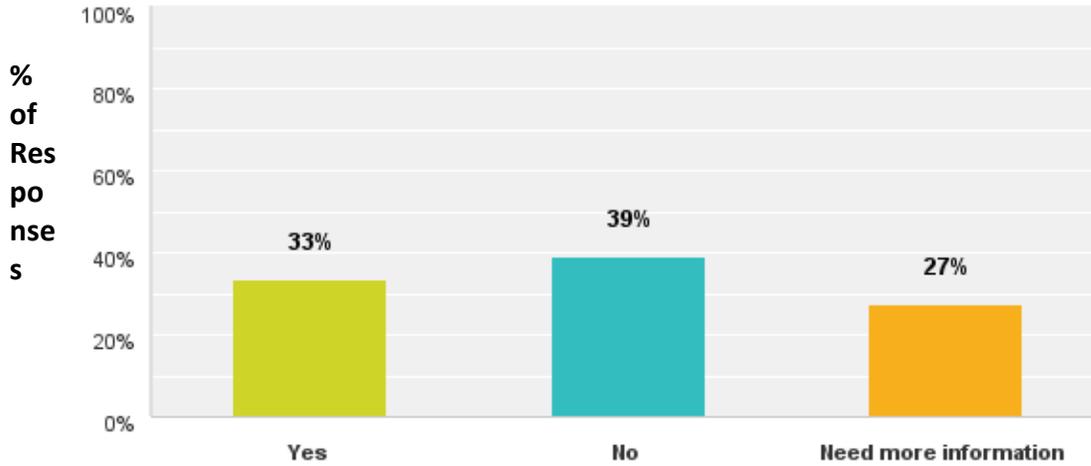
Q10 Which types of Town recreational facilities are important to you?

Answered: 533 Skipped: 50



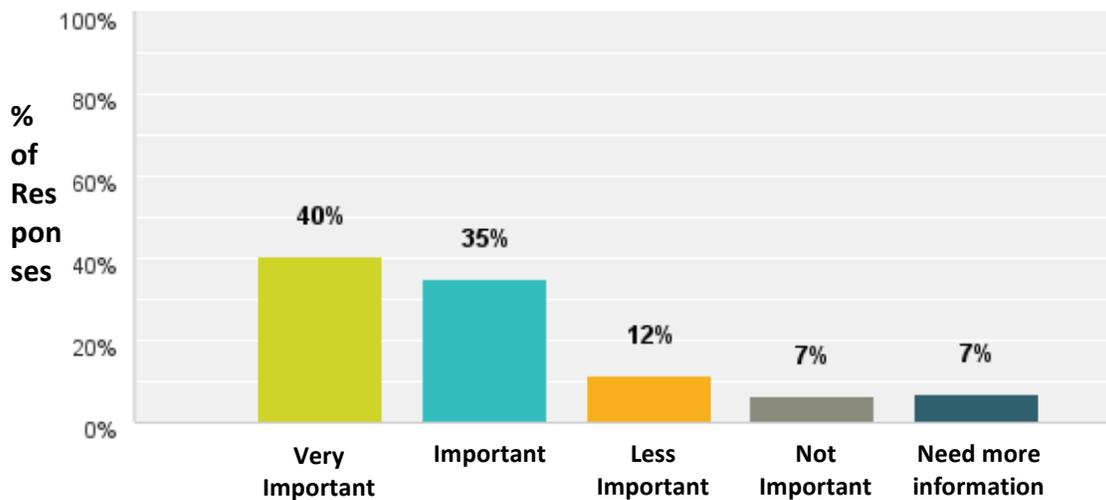
Q11 Would you support raising funds for a synthetic (turf) multi-sport playing field?

Answered: 531 Skipped: 52



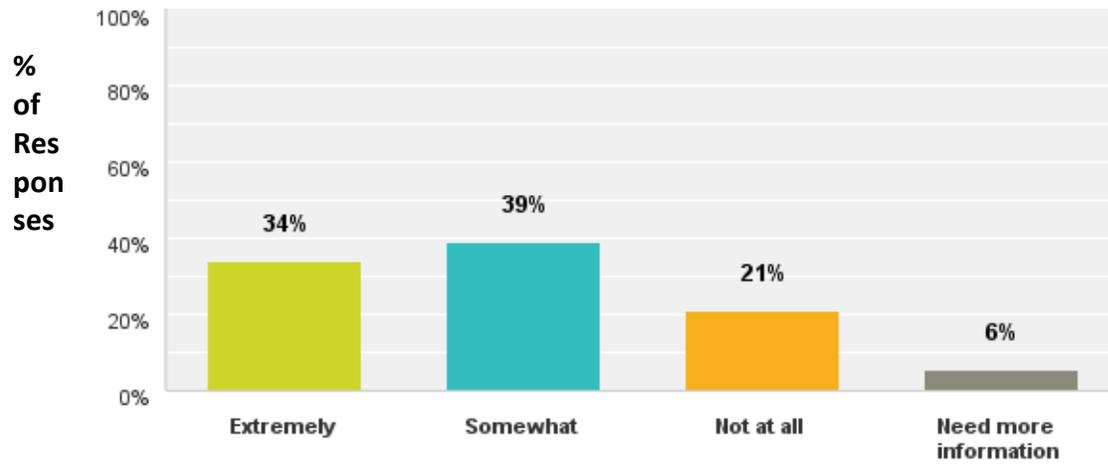
Q12 Do you think the creation of an interconnected town wide trail system as an alternative to using Harvard's roads is important?

Answered: 529 Skipped: 54



Q13 How concerned are you about the impact of climate change on Harvard's environment?

Answered: 526 Skipped: 57



C. Broad Statement of Open Space and Recreation Goals

The Townspeople of Harvard overwhelmingly value open space as important for agriculture, recreation, plant and animal habitat, groundwater protection and open vistas to maintain the rural character of the Town. Preservation of Harvard's historical features and scenic beauty is also very important.

As the Town population increases, so does the need for recreational facilities. It is necessary to acquire, develop or gain access to, and maintain active recreational lands to continue to meet the needs of the Townspeople.

Bare Hill Pond is a center of year round recreation in the community. The Town Beach and its programs have continually improved over the years as has water quality due to efforts to reduce phosphorous levels and invasive aquatic plants without the use of chemicals. Improving services at the Town Beach and maintaining the health of the pond are important goals.

Increasing connectivity between open space parcels, resulting in a network of trails and pathways into the Town Center and across Town, would allow for Townspeople of all ages to move around Town without the need for automobiles, provide increased recreational activities and create wildlife corridors.

Despite the amount of open space currently in Harvard, most Townspeople feel we need to protect more. Increased development pressure puts Harvard's open space at risk, a large part of which is not permanently protected. The Town needs to identify the open space it desires to preserve, and create a funding source to proactively protect it.

Section 7: ANALYSIS OF NEEDS

Based on the public input to this Plan and the data presented in earlier chapters, the most pressing needs for open space and recreation in Harvard are summarized below.

A. Resource Protection Needs

1. Protection of Harvard's Agricultural Base

The farms of Harvard are one of the primary components of the Town's rural character and are an integral part of Harvard's heritage and economy. Agricultural parcels, which comprise approximately 12% of the unprotected land in Harvard, need particular attention because they generally have excellent development potential and are under heavy pressure for conversion to other uses. Much of Harvard's farm land is orchards, which is one of the most threatened types of agriculture in the Commonwealth. The Town should have a plan for preserving these lands via purchase, Agricultural Preservation Restrictions or Conservation Restrictions. The public needs to be educated about the threat to these lands, and a funding source should be established to protect them.

2. Watershed Protection

As headwaters for three major watersheds, Harvard needs to develop a plan to protect water resources and their surrounding lands. Additional open space protection in the Bare Hill Pond area and around perennial streams, associated wetlands, and their buffer zones is essential. Further protection can be achieved by educating the community on watershed protection, non-polluting lawn care, and best management practices for horse and farm animals within the watershed area.

3. Rural Character

Harvard's rural character is defined by its mixed landscape and topography. Wooded hillsides give way to open fields and vistas, stone walls line most of the town's protected scenic roads, farmsteads and 18th and 19th century houses dot the older roads between the three historic villages (Still River, Town Center and Shaker Village). Critical landscapes and view sheds need to be identified and prioritized for protection, local and state regulations regarding shade trees and stone walls need to be carefully enforced, and a demolition delay bylaw should be considered to protect older historic structures. Redevelopment of farmsteads should be approached with the goal of maintaining the existing structures and building/open field pattern to the extent possible.

B. Community Needs

Based on statewide public input, the 2012 Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP)¹² cites four goals:

- Increase the availability of all types of trails for recreation
- Increase the availability of water-based recreation
- Invest in recreation and conservation areas that are close to home for short visits
- Invest in racially, economically, and age diverse neighborhoods given their projected increase in participation in outdoor recreation

In most part, these goals closely match the public input contained in this Plan.

1. Trail Network and Walkways

The public input for the Plan identified the need for a way for pedestrians to get around town – either to the Town Center and schools, or between recreation areas – without traversing Harvard’s narrow and increasingly busy roads. 75% of the survey respondents felt this was “Very Important” or “Important”, while 19% felt it was “Less Important” or “Not Important”. An additional 7% wanted more information before deciding. The need to make the Town Center safer for pedestrians was also noted.

A connected trail network – also identified as a need in the 2008 Plan – would provide a way for children to safely walk or bike to school, and for residents to get to Town Center without the use of motorized vehicles. This trail network would provide increased recreation opportunities for humans while at the same time open space surrounding such trails would provide wildlife corridors.

2. Bare Hill Pond

In addition to its importance as a natural resource and scenic beauty, Bare Hill Pond, a Great Pond, provides a wide variety of recreational uses – swimming, boating and winter sports. However, increased usage is taxing existing facilities which requires a comprehensive plan for future investment.

3. Active Recreation Facilities

While Harvard has continued to grow over the past decade, the development of recreational playing fields has not. As a result existing fields have become overused and overcrowded. Harvard is in need of additional playing fields for both organized soccer, baseball and other sports leagues, as well as for more informal play and pick-up games. Additional recreation facilities should be ADA accessible as much as possible.

¹² *Massachusetts Statewide Comprehensive Outdoor Recreation Plan 2012*, Executive Office of Energy and Environmental Affairs, December, 2012.

C. Management Needs

1. Open Space Protection Plan and Funding

The Townspeople value Harvard's open space for a variety of reasons, and despite the generous amount of open space that has already been protected, realize that more land needs to be preserved to maintain Harvard's rural character. This is especially critical as much of Harvard's most visible and iconic open space is unprotected. In the public input survey, 71% of the respondents indicated they believed more land should be protected in Harvard, and 80% said the Town should establish an Open Space Fund for acquiring it.

To prepare for the development pressure that is and will be increasingly placed on the unprotected open space, the Town first needs to identify the land that is most important to protect. It then needs to publicize the risk to this land to gain town-wide support, to identify a funding mechanism to support the plan, and get it approved by Town Meeting.

2. Open Space & Recreational Facility Maintenance

The Town's facilities for organized sports are heavily used, and their condition reflects it. Many comments from the public said that playing fields needed improved basic maintenance such as mowing, seeding, and watering. Also noted was the needed for additional playing fields to allow rotation and prevent overuse. Additional playing fields could either be developed in Town, or arrangements made to utilize fields in adjacent towns such as Devens.

The Town's natural open spaces could benefit from increased trail upkeep and invasive plant control. The Town's trails are maintained by volunteers. As invasive plant control often requires the use of chemicals and machinery, it has been contracted out. As presented in section 4G earlier, the Town has had some success in combating invasives. However, it is an ongoing effort, and requires funding to continue.

Management plans for all Town recreational facilities and its open space should be developed to insure these resources are properly maintained.

3. Bare Hill Pond

The increased usage of Bare Hill Pond for recreation (see 7.B.2 above) requires improved management of competing uses and coordination among the overlapping authorities regulating the pond area.

Section 8: GOALS AND OBJECTIVES

The following provides a comprehensive set of Goals and Objectives to meet the general goals identified in Section 6. The order of the Goals and Objectives is not prioritized.

Goals / Objectives

1. Provide an adequate & reliable funding stream to obtain & protect Open Space

- a) work with CPIC and CPC to identify an annual funding mechanism
- b) develop a strategy for obtaining Town Meeting approval
- c) work with other non-profits and government agencies to protect open space

2. Protect, enhance and preserve the rural character and historic landscapes

- a) maintain town's historic villages: Harvard center, Still River Village and Shaker Village
- b) preserve and maintain view sheds

3. Protect Harvard's agricultural land

- a) create a prioritized inventory of unprotected agricultural land
- b) publicize land that needs to be preserved
- c) allocate funding for the protection of agricultural land (APR and purchase)
- d) support active agriculture

4. Protect Bare Hill Pond as an important shared resource

- a) maintain and improve the health of the pond
- b) balance and regulate recreational use of the Pond and the beach

5. Provide an interconnected trail network and walkways

- a) develop a system of interconnected trails for travel (without an automobile) between open spaces, recreation areas and to Town Center
- b) provide safe walkways to and within Town Center

6. Provide recreational opportunities for all Harvard residents

- a) expand recreational opportunities for residents of all ages
- b) update any town owned recreational facilities that do not meet ADA

7. Maintain, expand & improve playing fields

- a) Improve field maintenance
- b) Develop more fields to allow rotation and prevent overuse

8. Protect groundwater and wetlands

- a) identify and protect open space critical to protecting Harvard's water resources
- b) educate townspeople on the importance and function of wetlands

9. Protect native plant and animal species

- a) create wildlife corridors
- b) preserve habitat for native plants, animals and threatened species
- c) educate townspeople on invasive plants

10. Maintain and improve the Town's open space

- a) develop management plans for Town owned open space
- b) allocate resources to maintain existing open space
- c) create a full-time conservation agent position

Section 9: 7 YEAR ACTION PLAN

This section contains the timetable for specific actions to accomplish the Goals & Objectives listed in Section 8.

Goal 1: Provide an adequate and reliable funding stream to obtain and protect open space

Actions	Responsible Party	Funding Source	Year(s)
Objective 1a: Work with CPIC and CPC to identify an annual funding mechanism			
Create a funding plan for open space protection	ConCom	n/a	2017
Meet with FinCom, CPIC, CPC & BOS to identify preferred funding source(s)	BOS, FinCom, ConCom, CPIC, CPC	n/a	2017
Objective 1b: Develop a strategy for obtaining Town Meeting approval			
Obtain FinCom & Board of Selectmen approval for Plan	BOS, ConCom, FinCom	n/a	2017
Publicize the benefits of protecting open space and the proposed funding sources	ConCom	Department Budget	2017
Objective 1c: Work with other non-profits and government agencies to protect open space			
Meet at least quarterly with HCT to discuss land protection projects	ConCom, HCT	n/a	ongoing
Develop a plan with USFWS, DFW, NRWA and other agencies / organizations for protecting land along the Nashua River corridor including the Devens South Post and supporting designation of the Nashua River as a Wild and Scenic River.	ConCom, NWRA	n/a	2020

BOS = Board of Selectmen
 CPC = Community Preservation Committee
 CPIC = Capital Planning & Investment Committee
 ConCom = Conservation Commission
 DFW = MA Division of Fisheries & Wildlife

FinCom = Finance Committee
 HCT = Harvard Conservation Trust
 NRWA = Nashua River Watershed Association
 USFWS = US Fish & Wildlife Service

Goal 2: Protect, enhance and preserve Harvard’s rural character and historic landscapes

Actions	Responsible Party	Funding Source	Year(s)
Objective 2a: Maintain the town’s historic villages: Harvard Center, Still River Village and Shaker Village			
Adopt a demolition delay bylaw.	HHC	n/a	2019
Propose nomination of Still River as a Local Historic District.	HHC	CPA, Grants	2022
Routinely maintain, and renovate when necessary, Town-owned historic buildings and structures, commons, stone walls, cemeteries, and sidewalks/trails/paths. Improve streetscapes with plantings, remove overhead wires where feasible, and calm traffic to facilitate pedestrian movements.	DPW, HHC	CPA, MassDOT Complete Streets	2016-2023
Develop a signage program to highlight important events and features of the Town’s past.	FWHA, HHC	CPA	2023
Preserve, for the general public, the panoramic views of Bare Hill Pond, western hills/New Hampshire mountains and Town Center by permanently protecting the top of Dean’s Hill.	ConCom, HCT	CPA, Capital fund, State grants	2017-2018
Objective 2b: Preserve and maintain view sheds			
Modify the Open Space Community – Planned Residential Development (OSC-PRD) zoning bylaw to promote clustering of new housing units in order to maintain views of Harvard landscapes, protect scenic resources on the site and increase open space.	Planning Board	n/a	2017
Adopt a Bare Hill Pond zoning overlay district to manage growth, protect environmental quality and preserve scenic views	Planning Board	n/a	2019
Determine the protection status of properties identified in the Freedom’s Way 2007 Landscape Inventory Report. When development threatens unprotected sites, consider acquisition or work with developers to minimize alteration of the view shed.	Conservation Agent, ConCom	CPA, Town Meeting	2016-2023

Capital Fund = Town Meeting Appropriation
 ConCom = Conservation Commission
 CPA = Community Preservation Act
 DPW = Department of Public Works

FWHA = Freedom’s Way Heritage Association
 HHC = Harvard Historical Commission
 HCT = Harvard Conservation Trust

Goal 3: Protect Harvard’s agricultural land

Actions	Responsible Party	Funding Source	Year(s)
Objective 3a: Create a prioritized inventory of unprotected agricultural land			
Create an evaluation methodology for prioritizing unprotected open space	ConCom, HCT	n/a	2016
Evaluate all Chapter 61A land and prioritize those most in need of protection	ConCom, HCT	n/a	2016-2017
Objective 3b: Publicize land that needs to be preserved			
Create a brochure to inform the public of the importance of protecting agricultural land	ConCom, HAAC	Department Budget	2017
Objective 3c: Allocate funding for the protection of agricultural land (APR and purchase)			
Include agricultural land in the open space funding plan (Objective 1)	ConCom	Department Budget	2017-2023
Protect the Davis orchard on Dean’s Hill and maintain as operating orchard	ConCom, HCT	CPA, Capital Fund, State grants	2017-2018
Objective 3d: Support active agriculture			
In conjunction with the HAAC, develop a plan to promote local commercial agriculture	ConCom, HAAC	Town Meeting	2016-2017

Capital Fund = Town Meeting Appropriation
 ConCom = Conservation Commission
 CPA = Community Preservation Act
 HAAC = Harvard Agricultural Advisory Committee
 HCT = Harvard Conservation Trust

Goal 4: Protect Bare Hill Pond as an important shared resource

Actions	Responsible Party	Funding Source	Year(s)
Objective 4a: Maintain and improve the health of the pond			
Continue coordinating deep winter drawdowns on an annual or biennial basis.	BHPWMC	Department Budget	ongoing
Maintain storm water runoff controls as needed.	BHPWMC	Department Budget	ongoing
Continue comprehensive monitoring of nutrient levels and invasive plants on an annual basis	BHPWMC	Department Budget	ongoing
Objective 4b: Balance and regulate recreational use of the Pond and the beach			
Create a plan for a new beach house, restroom facilities and seasonal boat storage	P&R	Capital Fund, Department Budget, Grants	2017
Work with ConCom to create a plan to add additional parking	P&R	n/a	2017
Fund the acquisition of new safety equipment for water related programs	P&R	Department Budget, Grants	ongoing
Update the recreation management plan for water activities; specifically regarding the number and type of boats on the water during peak times	Harbor Master, P&R	n/a	2019

BHPWMC = Bare Hill Pond Watershed Management Committee
 Capital Fund = Town Meeting Appropriation
 P&R = Park & Recreation Commission
 Town Meeting = Town Meeting Appropriation

Goal 5: Provide an interconnected trail network and walkways

Actions	Responsible Party	Funding Source	Year(s)
Objective 5a: Develop a system of interconnected trails for non-vehicular travel			
Update current trail mapping to identify potential linkages	ConCom, HCT	Department Budget	2017
Work with private landowners to provide easement access between trails on protected land	ConCom, HCT	Department Budget	ongoing
Objective 5b: Provide trails between Town Center, recreational and open space lands			
Complete linkages from Town Beach to McCurdy Track, including access to open space lands	ConCom, P&R	Department Budget	2018-2019
Create a trail through the Davis orchard on Dean’s Hill linking conservation land on Dean’s Hill to the Scorgie-Tufts land	ConCom, HCT	CPA, Town Meeting, State grants	2017-2018
Objective 5c: Provide safe walkways to and within Town Center			
Develop walking and biking trail from ~ 1 mile out into Town Center, with marked street crossings; similarly develop walkways within Center with clearly marked street crossings	ConCom & BOS	Town Meeting, Grants	ongoing
Objective 5d: Provide safe routes along roadways			
Install signage (“Share the Road”) along town roads alerting drivers to walkers, bikers and others using the roads.	BOS	Department Budget	2017 - 2018

BOS = Board of Selectmen
 ConCom = Conservation Commission
 HCT = Harvard Conservation Trust
 P&R = Park & Recreation Commission

Goal 6: Provide recreational opportunities for all Harvard residents

Actions	Responsible Party	Funding Source	Year(s)
Objective 6a: Expand recreational opportunities for residents of all ages			
Create a plan and prioritize improvements to Harvard Park including: <ul style="list-style-type: none"> • expand & improve the fitness course • expand, update and improve the playground • add permanent water and restroom facilities 	P&R	Department Budget, CPA, Capital Fund, Grants	2018-2021
Fund the acquisition of new recreation equipment for additional water related programs	P&R	Department Budget, Grants	ongoing
Plan a Town sports and recreation facility with space and pool for various fitness and recreation activities	P&R	Capital Fund, CPA, Grants	2020
Work with the Conservation Commission for the purpose of acquiring multi-use parcels of land that incorporate common goals regarding conservation, recreation trails and playing fields.	ConCom, P&R	Department Budget, Town Meeting, CPA, Grants	2019
Provide a short hike to a scenic hilltop destination, such as Dean’s Hill, that will attract people to rewarding views of their town’s iconic natural and historic features	ConCom, HCT	CPA, Town Meeting, State grants	2017-2018
Objective 6b: Update any town owned recreational facilities that do not meet ADA			
Incorporate federal ADA requirements and Section 504 recommendations for people with disabilities into town and recreational facilities	P&R, Town Administrator	CDGB Funds	ongoing
Identify trails that could be adapted for people with disabilities	ConCom, P&R, Town Administrator	n/a	2019

BOS = Board of Selectmen
 Capital Fund = Town Meeting Appropriation
 CDBG = Community Development Block Grant
 ConCom = Conservation Commission

CPA = Community Preservation Act
 P&R = Park & Recreation Commission
 Town Meeting = Town Meeting Appropriation

Goal 7: Maintain, expand & improve playing fields

Actions	Responsible Party	Funding Source	Year(s)
Objective 7a: Improve field maintenance			
Allocate funds for additional vendors to be used for field maintenance.	P&R	Department Budget	ongoing
Objective 7b: Develop more fields to allow rotation and prevent overuse			
Identify parcels of land suitable for an additional playing field and acquire funds for purchase.	P&R	Department Budget, Town Meeting, CPA, Grants	2019
Investigate the use of Devens playing fields	P&R	Department Budget	2018-2019

CPA = Community Preservation Act
P&R = Park & Recreation Commission

Goal 8: Protect groundwater and wetlands

Actions	Responsible Party	Funding Source	Year(s)
Objective 8a: Identify and protect open space critical to protecting Harvard's water resources			
Review current undeveloped land bordering water resources, determine their legal status and prioritize those most vulnerable	ConCom	n/a	2018
Develop a plan for financing protection of the most vulnerable land bordering water resources	BOS, ConCom, CPIC	CPA, Town Meeting, Grants	2019
Purchase part of, and provide a buffer to, the Bower's Brook wetlands by purchasing the Davis land on Still River Road	ConCom, HCT	CPA, Capital Fund, State grants	2017- 2018
Purchase Horse Meadow Knoll to protect the headwaters of Elizabeth Brook and the Assebet River	ConCom, HCT	CPA, Capital Fund, State grants	2017- 2019
Objective 8b: Educate townspeople on the importance and function of wetlands			
Update the wetlands pamphlet	ConCom	Department Budget	2017
Update the town website with current information	ConCom	n/a	ongoing
Develop presentation for local residents and school-aged children	ConCom	Department Budget	2018

BOS = Board of Selectmen
 Capital Fund = Town Meeting Appropriation
 ConCom = Conservation Commission
 CPA = Community Preservation Act

Goal 9: Protect native plant and animal species

Actions	Responsible Party	Funding Source	Year(s)
Objective 9a: Create wildlife corridors			
Engage townspeople in identifying wildlife movement in their neighborhoods	ConCom	n/a	ongoing
Identify areas of known wildlife movement; identify wildlife species using those corridors	ConCom	n/a	ongoing
Mark primary wildlife corridors including seasonal migrations using animal crossing signs	ConCom, DPW, P&R	Town Meeting, Grants	2018-2019
Enhance the protection of east/west drainage wildlife corridor through Prospect Hill conservation land and along Bower's Brook wetland by purchasing the abutting Davis land off Still River Road	ConCom, HCT	CPA, Capital Fund, State grants	2017-2018
Objective 9b: Preserve habitat for native plants, animals and threatened species			
Review known priority habitat areas referring to Massachusetts Priority Habitats of Rare Species as guide	ConCom	n/a	2017
Identify priority habitat areas, and prioritize those most in need of protection	ConCom	n/a	2018
Develop a guide for public use on creating and maintaining wildlife habitat	ConCom	Department Budget	2019
Purchase Horse Meadows Knoll on Sherry Road which is designated as NHESP Priority Habitat for rare and endangered species	HCT	Private funding	2017-2018
Objective 9c: Educate townspeople on invasive plants			
Develop invasive plant brochures for distribution to public	ConCom	CPA, Grant	2017-2018
Organize annual invasive plant removal days	ConCom, BHPWMC	Department Budget	ongoing
Organize lectures on invasive plants	ConCom	Department Budget	ongoing

BHPWMC = Bare Hill Pond Watershed Management Committee
 Capital Fund = Town Meeting Appropriation
 ConCom = Conservation Commission

CPA = Community Preservation Act P&R = Park & Recreation Committee
 DPW = Department of Public Works
 HCT = Harvard Conservation Trust

Goal 10: Maintain and improve the town's open space

Actions	Responsible Party	Funding Source	Year(s)
Objective 10a: Develop management plans for Town owned open space			
Create management plans for all Town-owned conservation land indicating current issues and recommended remediation and required maintenance	ConCom	Department Budget, Town Meeting, Grants	2018-2023
Objective 10b: Allocate resources to maintain existing open space			
Create a multi-year budget for open space maintenance and improvement, and include the amount in the annual ConCom budget	ConCom	Department Budget	ongoing
Objective 10c: Create a full-time Conservation Agent position			
Obtain funding for a full-time Conservation Agent.	ConCom, FinCom	Department Budget	2017

ConCom = Conservation Commission
 FinCom = Finance Committee

Section 10: PUBLIC COMMENTS

OFFICES OF THE
BOARD OF SELECTMEN
TOWN ADMINISTRATOR

13 Ayer Road, Harvard, Massachusetts 01451
(978) 456-4100

www.harvard.ma.us
(978) 456-4107 fax



June 6, 2017

Paul Willard, Chairman
Harvard Conservation Commission
13 Ayer Road
Harvard, MA 01451

Re: Open Space and Recreation Plan

Dear Chairman Willard,

After reviewing the 2016 Open Space and Recreation Plan (OSRP) there were no questions from this office and upon further review the document crafted is a fine piece of work.

I know the process of updating an OSRP can be long and arduous, but this final document will serve as a useful guide for the protection of open space and creation of new recreation areas over the next several years. Thank you for doing such a fine job as it made the approval of such a plan quite easy.

Sincerely,

A handwritten signature in blue ink, which appears to be "Timothy P. Bragan", is written over the typed name and title. The signature is fluid and somewhat stylized.

Timothy P. Bragan
Town Administrator



April 5, 2017

Liz Allard
Land Use Administrator/
Conservation Agent
Town of Harvard
13 Ayer Road
Harvard, MA 01451

Re: Town of Harvard Open Space and Recreation Plan

Dear Ms. Allard:

The Montachusett Regional Planning Commission (MRPC) staff completed a review of Harvard's Open Space and Recreation Plan (OS&RP). Staff used the Open Space Guidebook published by the Executive Office of Energy and Environmental Affairs (EEOEA), Division of Conservation Services (DCS) "Open Space and Recreation Plan Requirements" to determine if the local planning document contained the required sections.

Harvard's Plan is an excellent document, thorough and put together very well. We would like to take this opportunity to congratulate all local residents and officials for completing this document.

Sincerely,

A handwritten signature in black ink, appearing to read "John Hume".

John Hume
Planning & Development Director

OFFICE OF THE
PLANNING BOARD

13 AYER ROAD HARVARD, MA 01451 PHONE: 978-456-4100 FAX: 978-456-4119



May 1, 2017

Town of Harvard
Conservation Commission &
Park & Recreation Committee
13 Ayer Road
Harvard, MA 01451

RE: 2016 Open Space & Recreation Plan

Dear Mr. Willard & Ms. White,

The Harvard Planning Board discussed the Open Space and Recreation Plan at its April 10, 2017 meeting. There were no comments except to commend the Commission, Park and Recreation, Peter Dorward, Liz Allard and all who participated, on a job well done. We look forward to working with you this year.

For the Board,

A handwritten signature in black ink, appearing to read "Erin McBee".

Erin McBee
Chair

Section 11: REFERENCES

References for Section 3: Community Setting

Anderson, Robert C. 1976. *Directions of a Town, A History of the Community*, The Harvard Common Press

Berg, S.P., and C.W. Dempsey. 1997. *Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation*. Harvard Rural A Historic Landscape Committee

Buchanan, David, and Rebecca Way. October 2000. *Devens Regional Trails Initiative*. Devens Enterprise Commission

Darby, Marge, Jean C. McCrosky, and Mildred A. Chandler. 1994. *A Guide to Nashaway North Central Massachusetts*, New Guide Group

Eliot, Charles W., 1970. *Planning for Harvard, Massachusetts*

Gills, Father Gabriel, Abbott, St. Benedict Abbey. August 2002. Telephone conversation

The Massachusetts Landscape Inventory: A Survey of the Commonwealth's Scenic Areas. 1982. Massachusetts Department of Environmental Management.

Nourse, Henry S. 1894. *History of the Town of Harvard: 1732-1893*

Harvard Open Space and Recreation Plan. 2008

Harvard Master Plan, 2016

Mass. Department of Conservation and Recreation, Massachusetts Heritage Landscape Inventory Program: *Harvard Reconnaissance Report*, 2006.

Weston and Sampson Engineers, Inc., and the Norfolk Ram Group, *Project Evaluation Form, Harvard Town Center Low Pressure Sewer Project and Wastewater Treatment Facility Upgrades*, 2009.

Chapter 498 of the Acts of 1993, *An Act Creating the Devens Enterprise Commission*

References for Section 4A: Geology, Soils, Topography

Devens Open Space and Recreation Plan. 2008. Massachusetts Development Finance Agency, Devens Commerce Center, Devens, MA

Harvard Open Space and Recreation Plan. 2008. Town of Harvard, MA

Morine, Theodore, hydrogeologist. November 2002. Personal communication, Harvard

References for Section 4B: Landscape Character

The Massachusetts Landscape Inventory: *A Survey of the Commonwealth's Scenic Areas*. Massachusetts Department of Environmental Management. 2006. Boston, MA

Harvard Master Plan. 2016. Harvard Planning Board

References for Section 4C: Water Resources

Bare Hill Pond, Harvard, MA. July 1999. (MA81007) TMDL. Commonwealth of Massachusetts Executive Office of Environmental Affairs Department of Environmental Protection

Bare Hill Pond Watershed Management Committee,
http://www.harvard.ma.us/Pages/HarvardMA_BComm/BareHill/index , August 2014.

Bolton Open Space Plan. 2005. The Bolton Open Space Committee

Frances H. Clark. August 2000. *SuAsCo Biodiversity Protection and Stewardship Plan*

Communities Connected by Water Study. 2001. Massachusetts Watershed Initiative Executive Office of Environmental Affairs

Source Water Assessment and Protection (SWAP Report 2002. Massachusetts Department of Environmental Protection.

Focus Areas for Wildlife Habitat Protection in the Nashua River Watershed. Ecological Massachusetts Riverways Program, Massachusetts Watershed Initiative of the Executive Office of Environmental Affairs.

Harvard Water Supply Consumer Confidence Report. 2015. Harvard Water Commissioners

Harvard Master Plan. 2016. Harvard Planning Board

Massachusetts Natural Heritage Atlas 13th Edition. 2008. Massachusetts Natural Heritage and Endangered Species Program

Massachusetts Year 2014 Integrated List of Waters. December 2015. Massachusetts Department of Environmental Protection Division of Watershed Management Watershed Planning Program.

Nashua River Habitat Assessment Report. 2000. Massachusetts Audubon Society

Nashua River Basin 2003 Water Quality Assessment Report. August 2008. Massachusetts Department of Environmental Protection, Division of Watershed Management

Nashua River Watershed Five-Year Action Plan 2003-2007. October 2003. Nashua River Watershed Association and the Massachusetts Watershed Initiative, Nashua Team

Water Resources Protection Report. November 1994. Devens Enterprise Commission

References for Sections 4D: Vegetation and 4E: Fisheries and Wildlife

- Barbour, H., T. Simmons, P. Swain, and H. Woolsey. 1998. *Our Irreplaceable Heritage: Protecting Biodiversity in Massachusetts*. Natural Heritage & Endangered Species Program, Division of Fisheries and Wildlife and The Massachusetts Chapter of the Nature Conservancy
- Berg, S. P. and C. W. Dempsey. 1997. *Planning for Harvard's Rural Landscape: Case Studies in Historic Conservation*. Harvard Rural Historic Landscape Committee
- Collins, Jeffrey. 2000. *Focus Areas for Wildlife Habitat Protection in the Nashua River Watershed, Massachusetts*. Massachusetts Audubon Society, Lincoln, MA
- Collins, Jeffrey. 1999. *Ecological Inventory and Conservation Management Plan for the Fruitlands Museum in Harvard, Massachusetts*. Massachusetts Audubon Society, Lincoln
- Eliot, Charles W. 1970. *Planning for Harvard, Massachusetts*
- Foster, D. R. 1992. *Land-Use History (1730-1990) and Vegetation Dynamics in Central New England, USA*. *Journal of Ecology* 80:753-772
- Foster, Charles H. W., ed. 1998. *Stepping Back to Look Forward: A History of the Massachusetts Forest*. Petersham, MA: Harvard Forest
- Jorgensen, Neil. *A Guide to New England's Landscape*. 1997. Chester, CT: Globe Pequot Press
- Jorgensen, Neil. *A Sierra Club Naturalist's Guide to Southern New England*. 1978. San Francisco: Sierra Club Books
- Kay, David. December 13, 2000. Personal letter
- Leahy, C., J. H. Mitchell, and T. Conuel. 1996. *The Nature of Massachusetts*. Addison-Wesley, Reading, MA
- Massachusetts Natural Heritage Atlas 13th Edition*. 2008. Massachusetts Natural Heritage and Endangered Species Program
- Swain, P. C., and J.B. Kearsley. 2011. *Classification of the Natural Communities of Massachusetts*. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, Westborough, MA
- U.S. Fish and Wildlife Service, Eastern Massachusetts National Wildlife Refuge Complex, *Draft Comprehensive Conservation Plan and Environmental Assessment; Assabet River, Great Meadows and Oxbow National Wildlife Refuges, April 2003*

References for Section 4G: Environmental Challenges

Bare Hill Pond, Harvard, MA. July 1999. (MA81007) TMDL. Commonwealth of Massachusetts Executive Office of Environmental Affairs Department of Environmental Protection

Bare Hill Pond development history based on Assessor data, analyzed by RKG Associates, September 2014.

Bare Hill Pond 2014 Report on Water Quality Sampling, September 2014, Aquatic Restoration Consulting, LLC:

http://www.harvard.ma.us/Pages/HarvardMA_BComm/BareHill/BHP-2014-Report%20Final.pdf

[CDC.gov](http://www.cdc.gov) (for information on the Zika virus)

Eutrophication. United States Environmental Protection Agency Mid-Atlantic Integrated Assessment. www.epa.gov/maia

Managing Non-point Source Pollution from Households. United States Environmental Protection Agency. October 1999. A series of fact sheets on non-point source pollution. www.epa.gov/owow/nps/facts/point10.html

Marsh, H.G., *Bare Hill Pond Chronology of Activities.* September 15, 2002. Bare Hill Pond Watershed Management Committee

Marsh, H. G., and Janice L. Green. *Report on Harvester/Drawdown Activities in Bare Hill Pond 1998-98 and 1999-2000.* September 27, 2000. Bare Hill Pond Watershed Management Committee

The Massachusetts Nonpoint Source Pollution Management Plan 2014-2019.

Massachusetts Department of Environmental Protection. August, 2014.

<http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/npsmp.pdf>

The Massachusetts Nonpoint Source Pollution Management Manual ("Clean Water Toolkit"). Massachusetts Department of Environmental Protection. May, 2006.

<http://projects.geosyntec.com/NPSManual/NPSManual.pdf>

Sites/Reportable Release Lookup. Massachusetts Department of Environmental Protection Bureau of Waste Sites Cleanup. www.state.ma.us/dep/bwsc/sites/report.htm

Tom Quinn, "Trees under attack: Worcester's beetle battle rages on." *Worcester Magazine*, July 30, 2015.

Wildlife, Habitat and Vegetative Assessment of Bare Hill Pond, With Management Implications. March 2002. ENSR International for the Bare Hill Pond Committee

Appendix 1: Maps

Map A.1- Zoning & Zoning Overlay Districts

Map A.2 - Water Resources 1

Map A.3 - Water Resources 2

Map A.4 - Water Resources 3

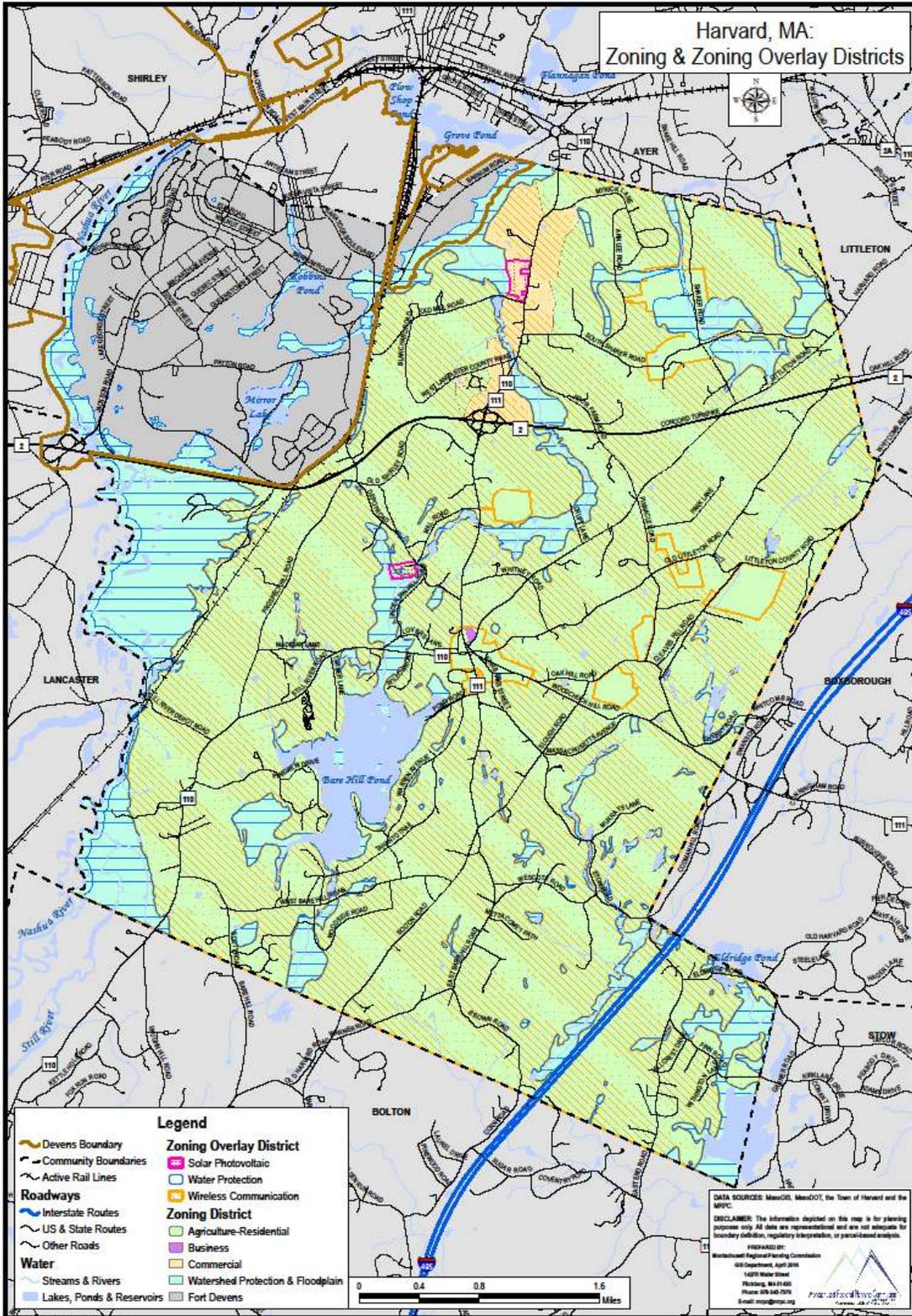
Map A.5 - Unique Features & Scenic Resources

Map A.6 - Regional Context

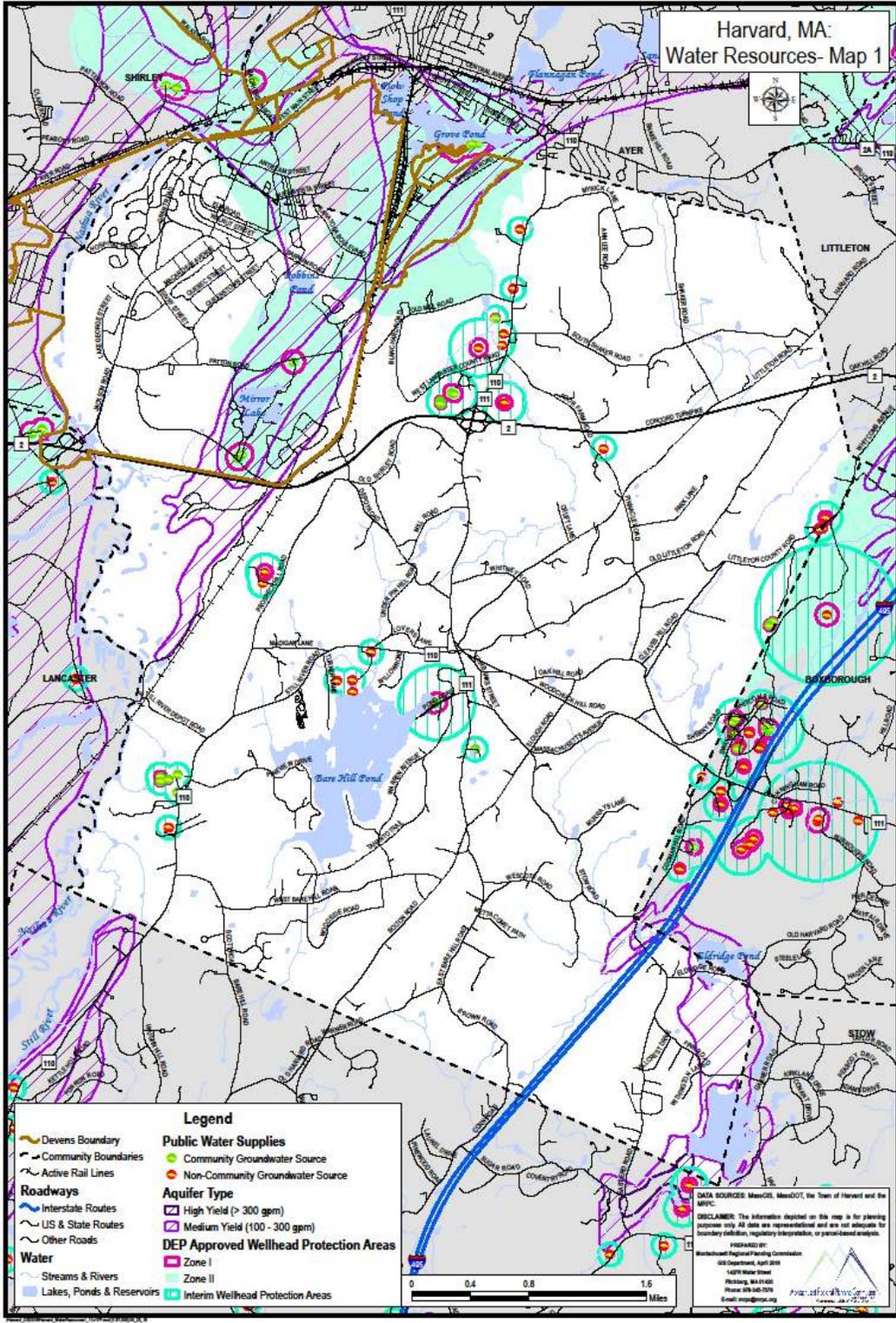
Map A.7 - Open Space

Map A.8 - Soils & Geologic Features

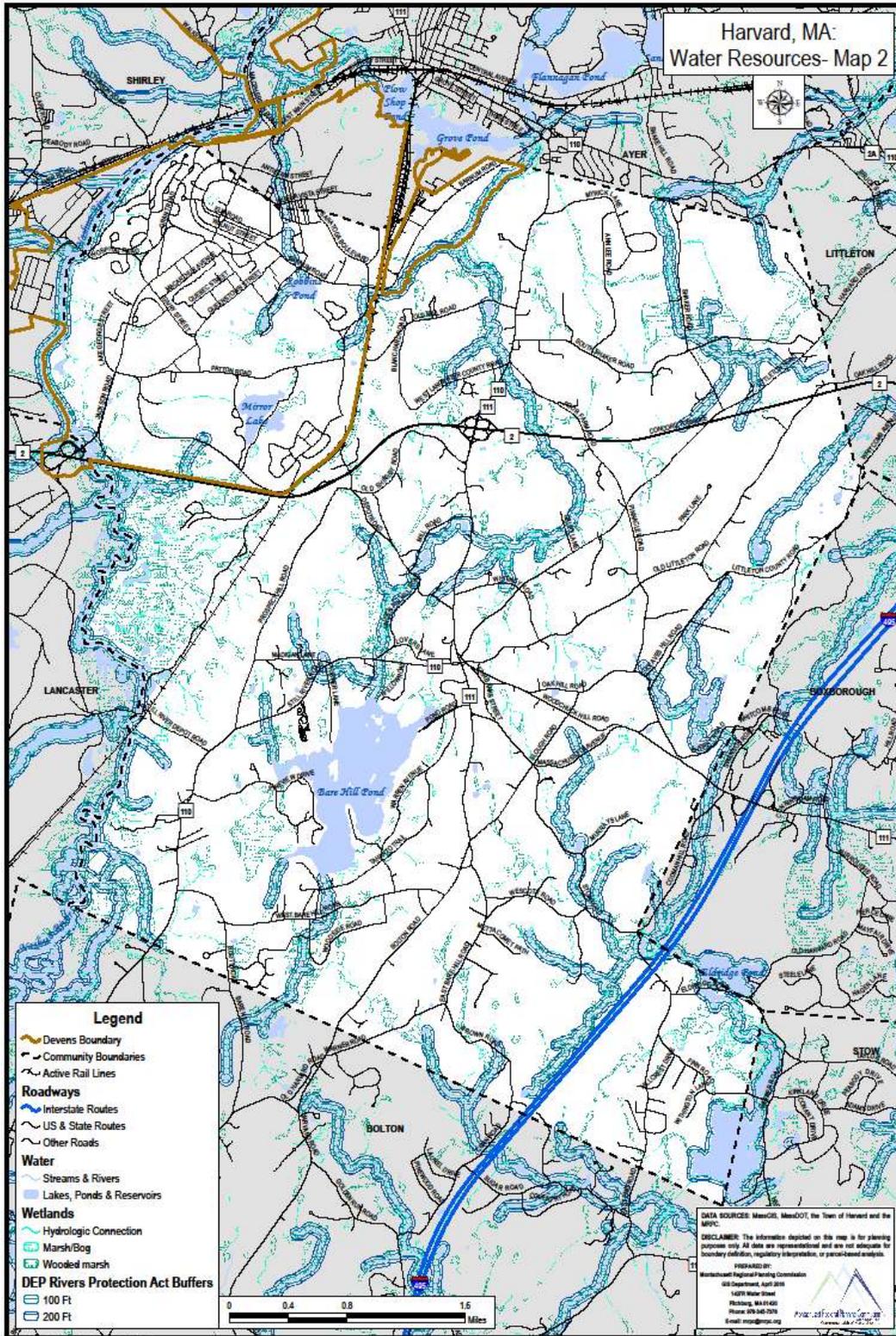
Map A.9 – Action Plan



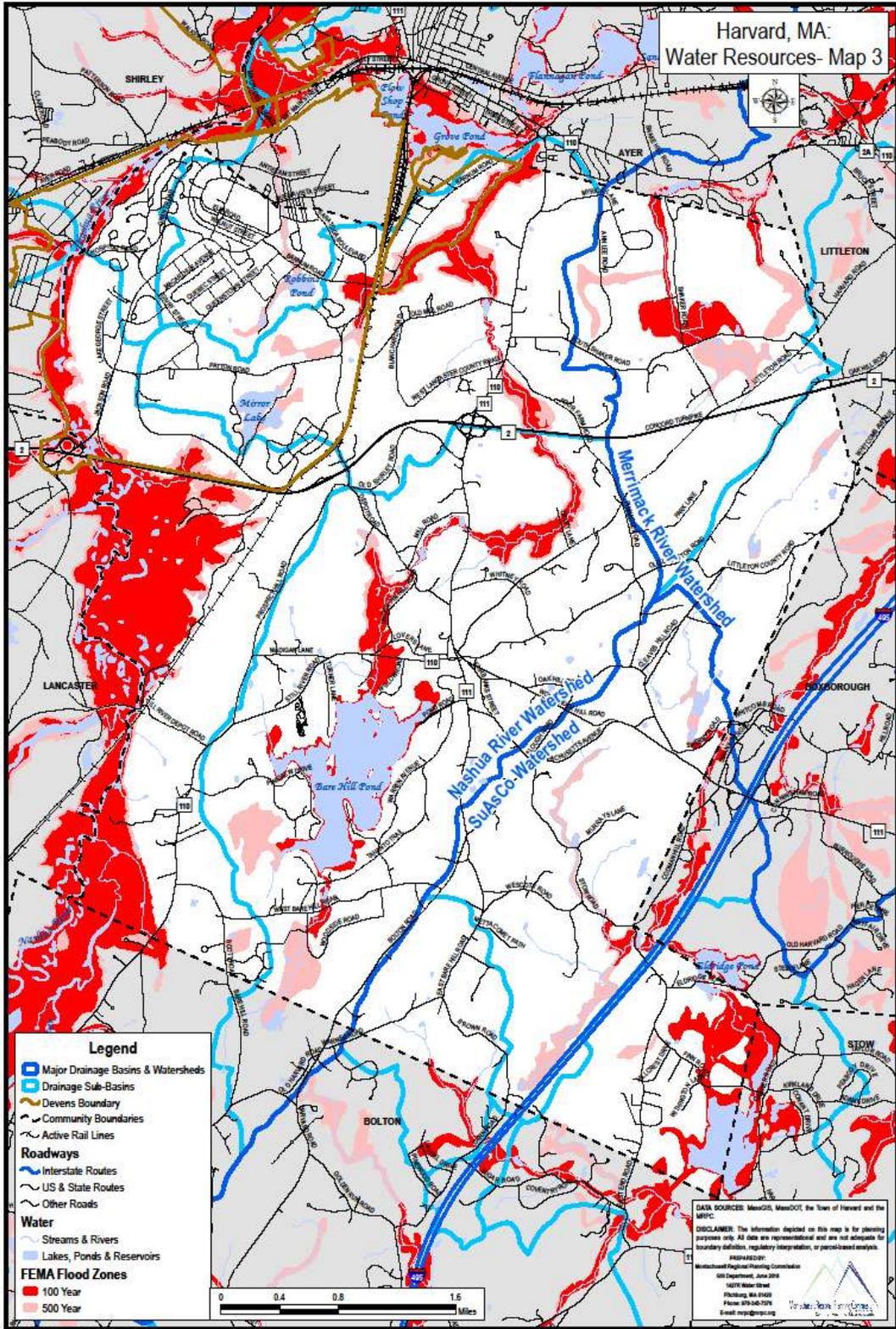
MAP A.1 ZONING & ZONING OVERLAY DISTRICTS



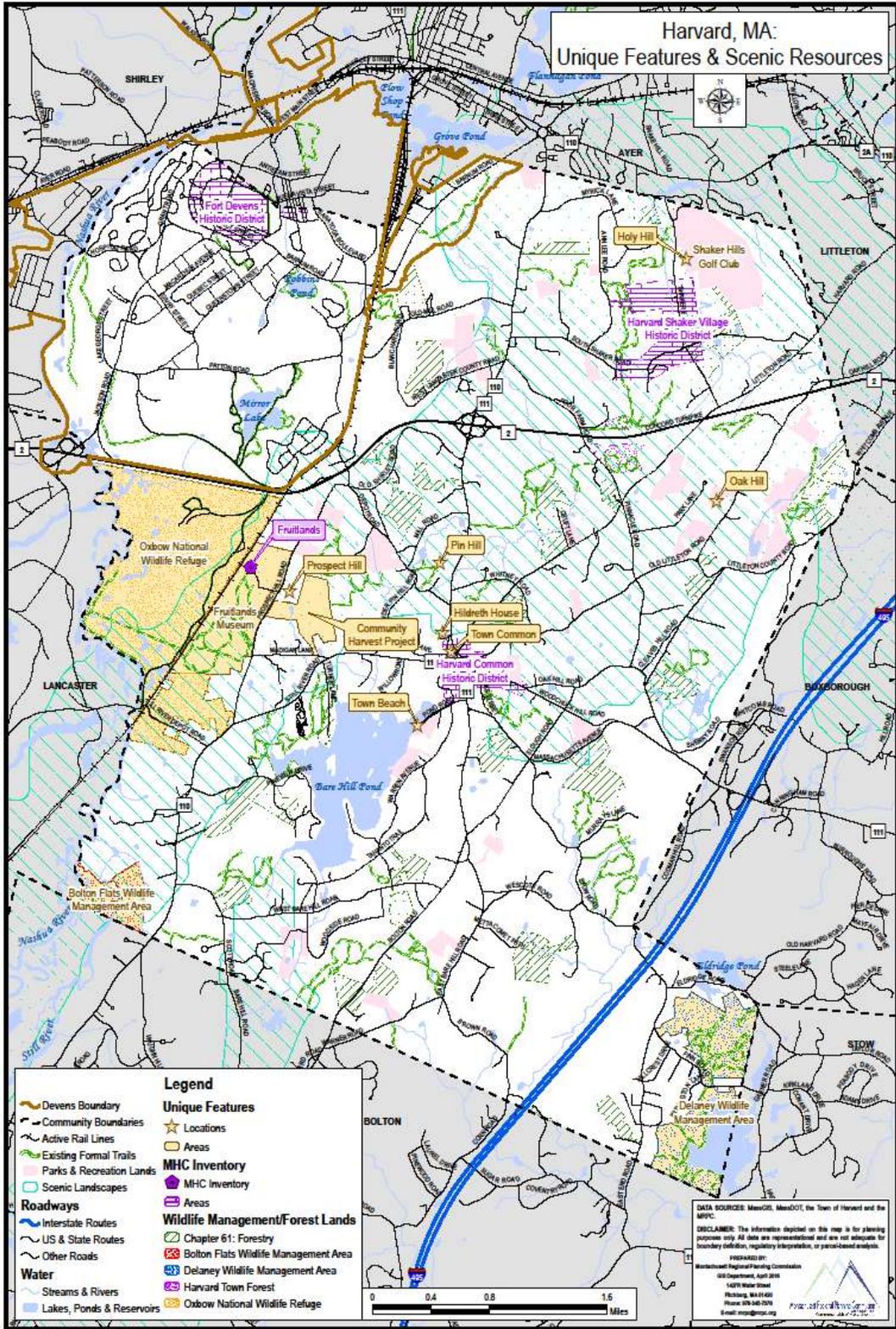
MAP A.2 WATER RESOURCES 1



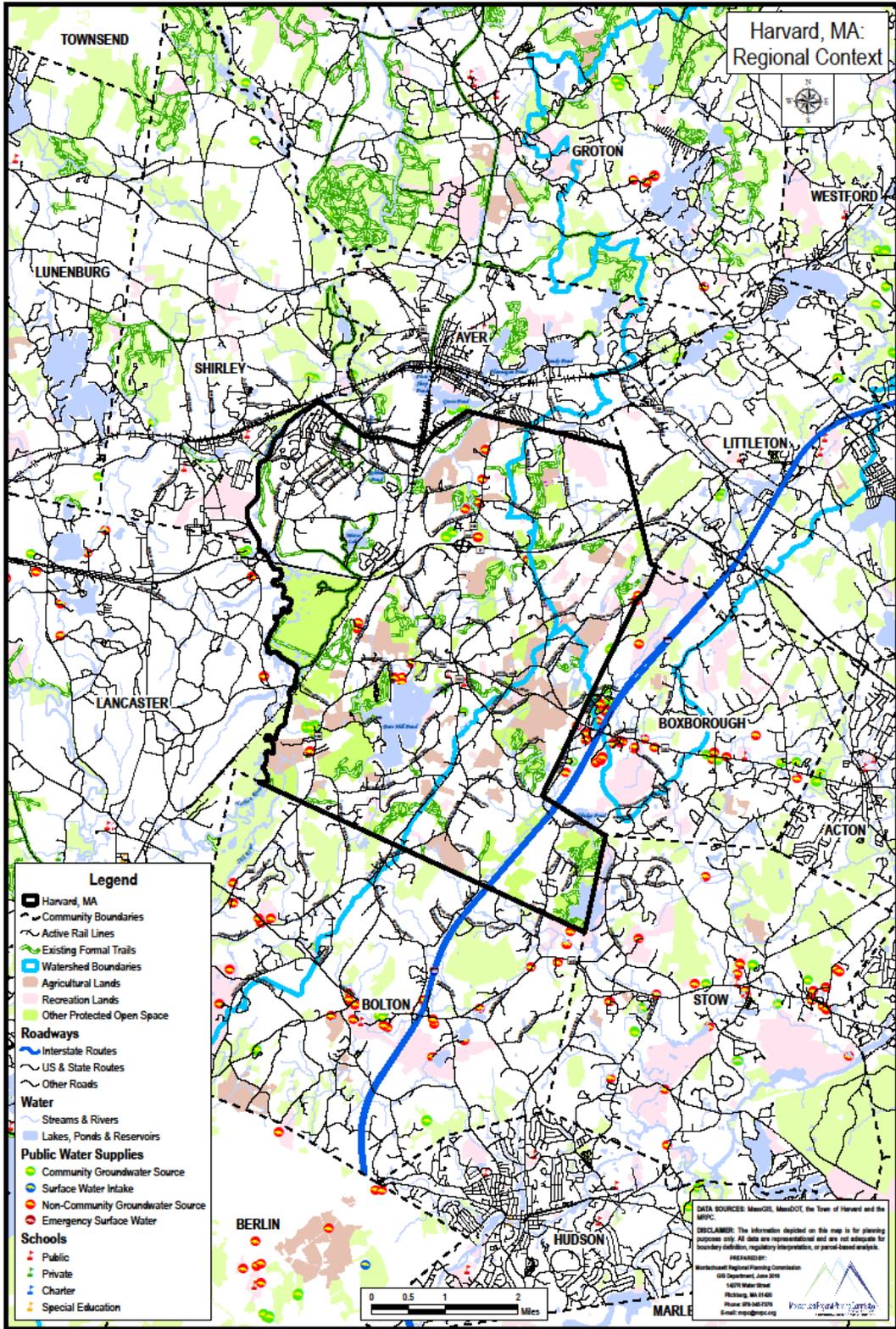
MAP A.3 WATER RESOURCES 2



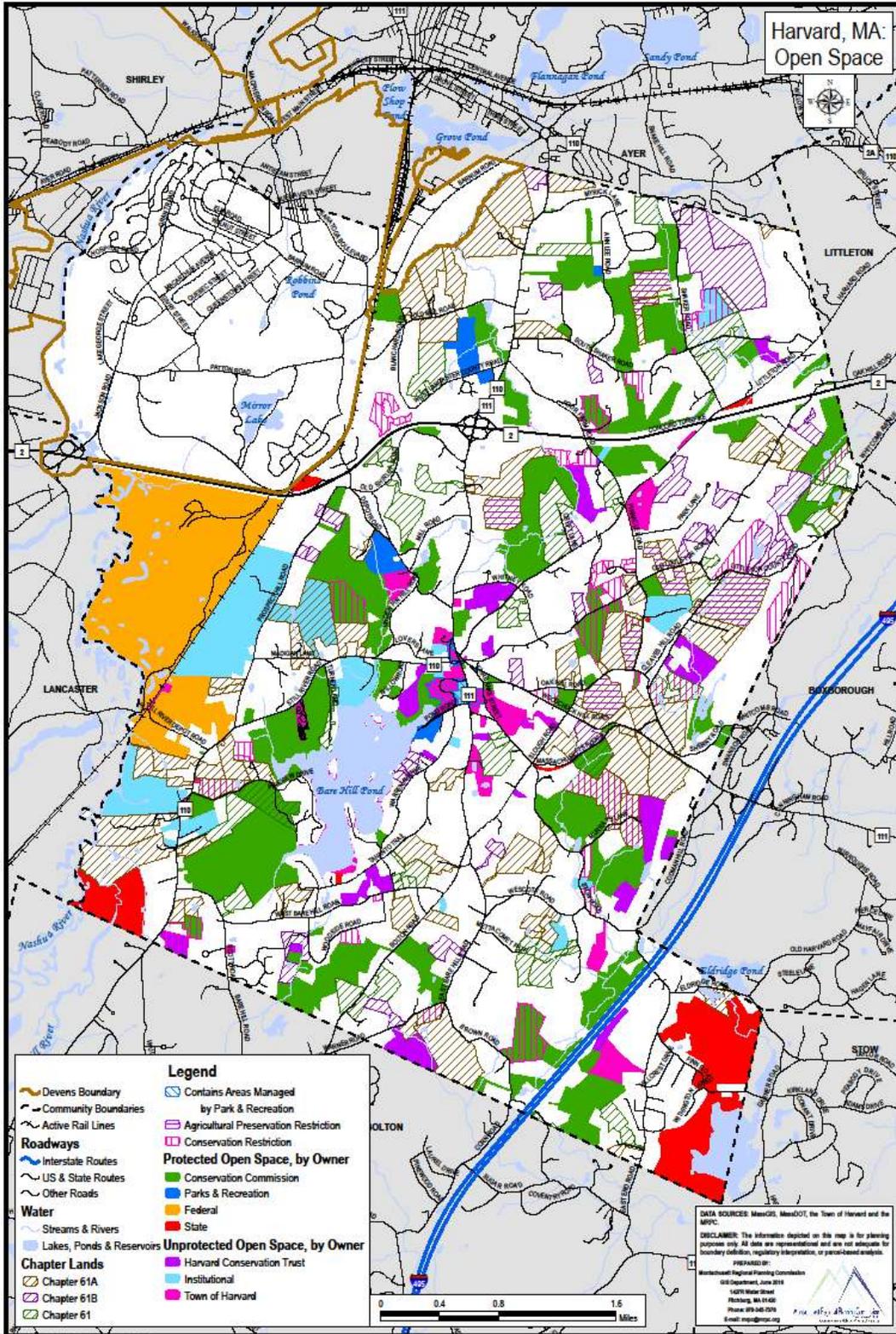
MAP A.4 WATER RESOURCES 3



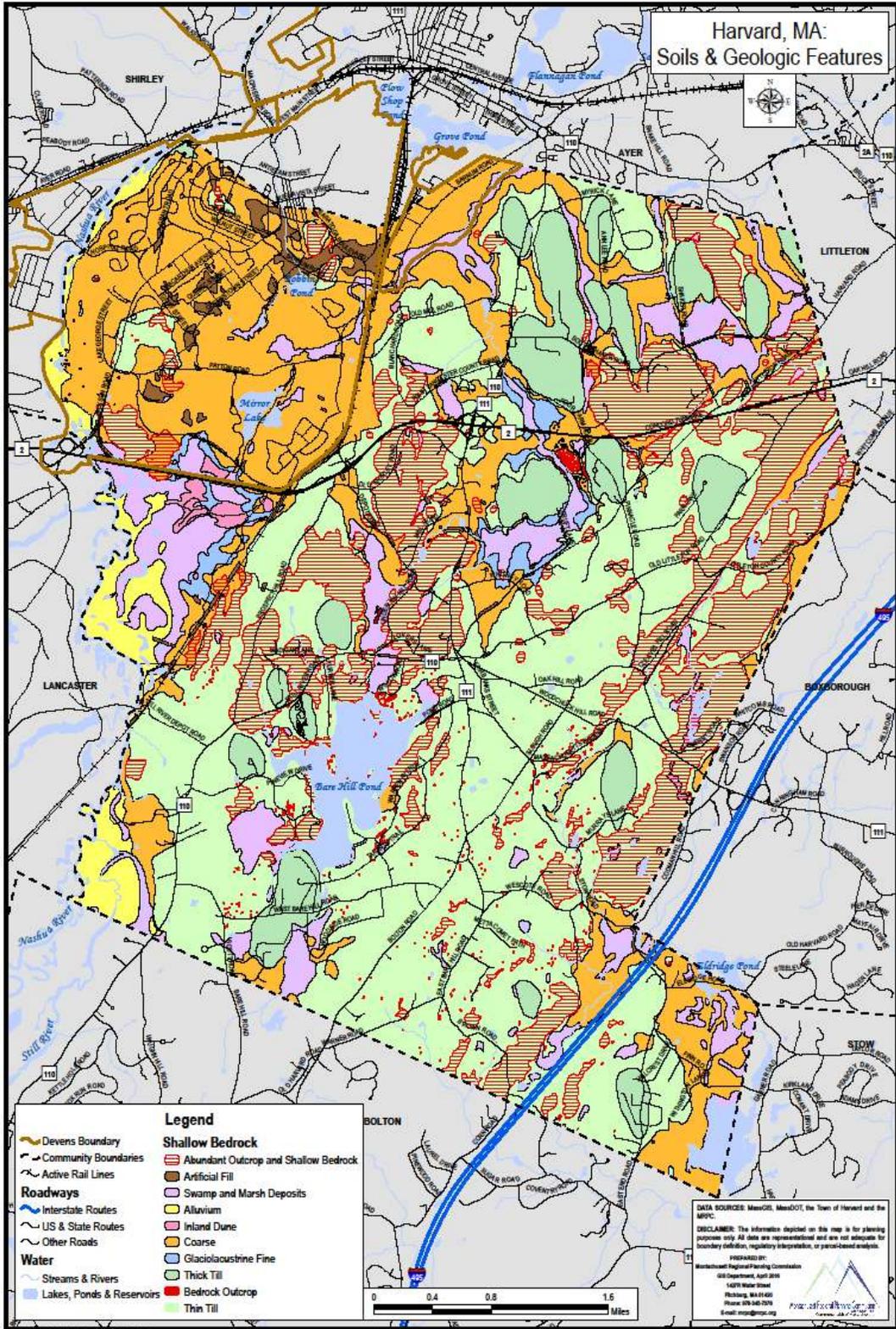
MAP A.5 UNIQUE FEATURES & SCENIC RESOURCES



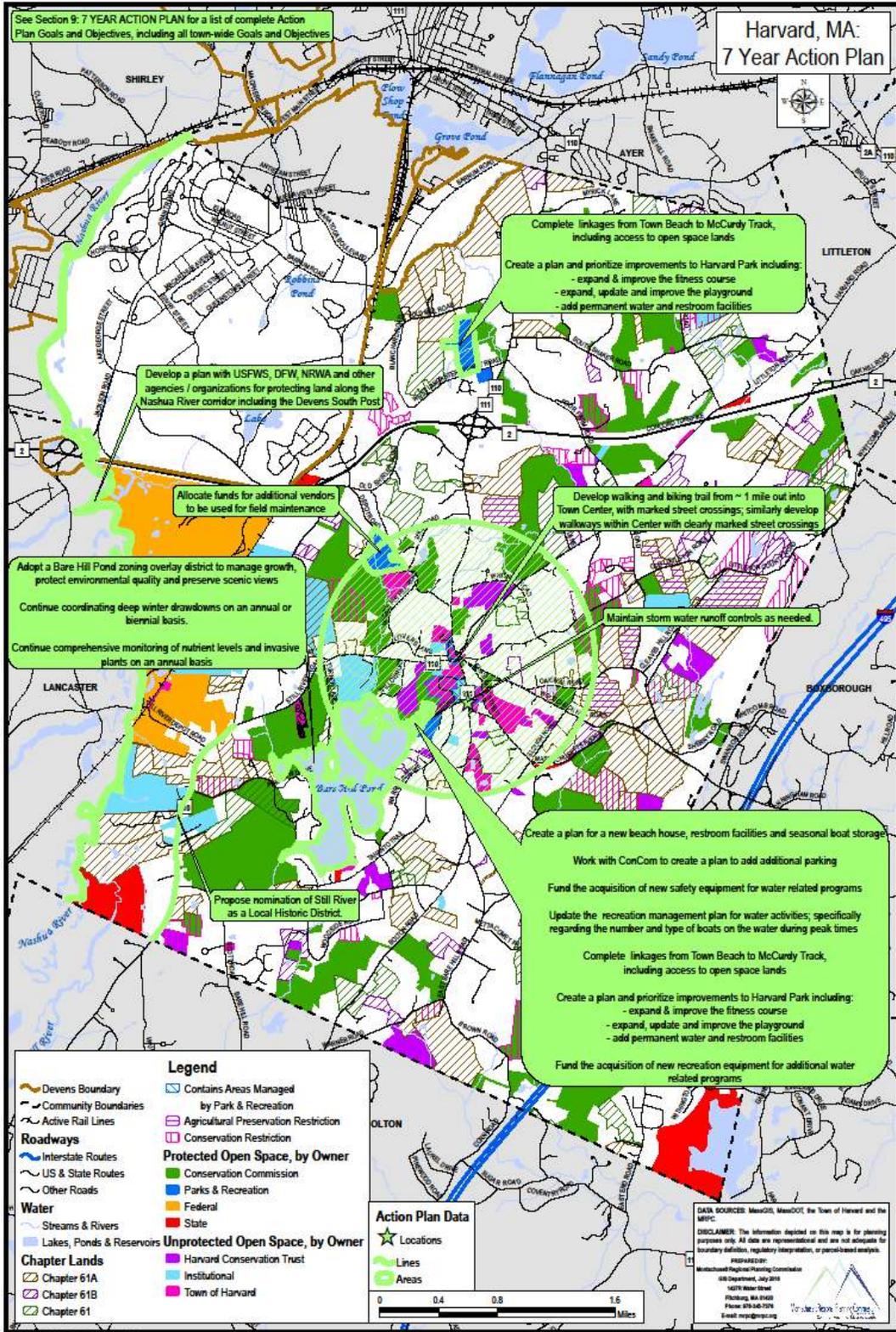
MAP A.6 REGIONAL CONTEXT



MAP A.7 OPEN SPACE



MAP A.8 SOILS & GEOLOGIC FEATURES



MAP A.9 ACTION PLAN

Appendix 2: Open Space and Recreation Plan Survey



Town of Harvard - Open Space and Recreation Survey

Welcome to the Town of Harvard Open Space & Recreation Survey

Thank you for participating in the survey. Your feedback will be used to update the Town's Open Space & Recreation Plan by identifying what is important to its residents, and to create a 5 year action plan to address those needs.

All responses are anonymous.

1. How important to you is it to preserve each of the following:

	Very Important	Important	Less Important	Not Important
Vistas, view sheds (panoramic views)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Places of historical or architectural interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farmlands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wetlands, ponds, rivers and streams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forests and fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Land to meet our needs for playing fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional comments:

2. How much do you value open space in Harvard?

Extremely	Very much	Somewhat	Not at all
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional comments:

3. Why do you value open space?

	Very Important	Important	Less Important	Not Important
Increased property values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Agricultural use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides open vistas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preserves plant and animal habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gives the town a rural feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protection of ground water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protection of rare species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional comments:

4. How satisfied are you with the Town's initiatives for protecting open space in Harvard?

Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Not Satisfied	Don't Know
<input type="radio"/>				

Additional comments:

5. Currently the Town has approximately 20% of its land permanently protected. Do you believe more land should be protected?

- Yes
- No



Town of Harvard - Open Space and Recreation Survey

Protection of open space in Harvard is currently funded using Community Preservation (CPC) funds. In the recent past, this funding has ranged from \$75,000 to \$200,000 per year, and is dependent on what other competing uses there are for CPC funds. Before the advent of CPC, Town Meeting annually allocated funds for future open space protection, thus creating a fund that allowed the Town to purchase and maintain land as it came on the market.

6. Should the Town Meeting establish an Open Space Fund for future land acquisitions?

- Yes - an Open Space Fund should be created so the Town can react as land comes onto the market.
- No - funds should be requested from the Town Meeting as needed for purchasing land as it comes onto the market.



Town of Harvard - Open Space and Recreation Survey

The cost of land is increasing as the amount of remaining open space decreases. Currently, a 1.5A building lot in Harvard costs around \$250,000.

- Setting aside \$200,000 per year for open space would increase the average tax bill for a single family residence by \$21.
- Increasing the CPC surcharge from 1.1% to 3% would increase the average tax bill for a single family residence by \$182. The increased CPC surcharge would also result in increased State matching funds for a given year. (The State allocates CPC funds based on the State money available for a year, the number of towns participating, and the surcharge % each town has set.)
- Appropriating \$200,000 per year would increase the average tax bill for a single family residence by \$21.

6. Should the Town Meeting establish an Open Space Fund for future land acquisitions?

- Yes
- No

7. How should an Open Space Fund be funded?

	Strongly Agree	Agree	Disagree	Strongly Disagree
From CPC funds at the current 1.1% surcharge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
By increasing the CPC surcharge from 1.1% to 3%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
By annually appropriating money in the Town budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional comments:

8. How much annual funding should be appropriated for an Open Space Fund?

- \$0
- \$100,000
- \$200,000
- >\$200,000
- At a level needed to assure Open Space Fund has \$_____

9. How satisfied are you with places for recreation in Town?

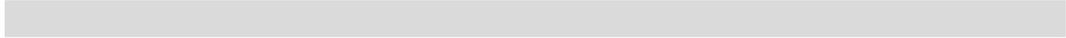
	Very Satisfied	Satisfied	Dissatisfied	Not Satisfied
For organized sports (e.g., soccer, baseball)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For individual recreation (e.g., walking, biking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional comments:

10. Which types of Town recreational facilities are important to you?

	Very Important	Important	Less Important	Not Important
Hiking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bicycling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Swimming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cross Country Skiing / Snowshoeing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Playground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mountain biking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tennis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horseback Riding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soccer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lacrosse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canoeing/Kayaking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sailing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rowing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Track	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Baseball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basketball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snowmobiling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ice skating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other activity:



11. Would you support raising funds for a synthetic (turf) multi-sport playing field?

- Yes
- No
- Need more information

Additional comments:

12. Do you think the creation of an interconnected town wide trail system as an alternative to using Harvard's roads is important?

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Very Important | Important | Less Important | Not Important | Need more information |
| <input type="radio"/> |

Additional comments:

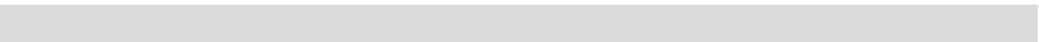


13. How concerned are you about the impact of climate change on Harvard's environment?

- Extremely
- Somewhat
- Not at all
- Need more information

Additional comments:

14. Do you have any suggestions for improving Harvard's open space and recreation facilities, or any other comments?



Thank you for sharing your feedback.

Appendix 3: ADA Self-Assessment

The Harvard Park & Recreation Department and the Conservation Commission make every effort to accommodate people with disabilities, physically and programmatically. The Section 504 Self-Evaluation of Harvard's recreation and conservation land indicates that relatively few accommodations exist to provide full access to these areas for people with disabilities. The evaluation results are show along with a transition plan for corrective action, if any.

504 Administrative Requirements

- The Town 504 Coordinator is Timothy Bragan, Town Administrator
- The section of the Personnel Policies & Procedures in regards to Recruitment and Selection is included at the end of this appendix
- Harvard employment opportunities are always advertised without discrimination as to age, sex, marital status, race, color, creed, national origin, handicap, veteran status or political affiliation.

Facility Name	Abbot Orchard		
Owner/Manager	Conservation Commission		
Location	Bolton Road		
Acreage	0.43		
Activity	Orchard		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Abbot Orchard		
Owner/Manager	Conservation Commission		
Location	Bolton Road		
Acreage	8.66		
Activity	Orchard		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Abbot Swampland		
Owner/Manager	Conservation Commission		
Location	Woodside Road		
Acreage	1.50		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	

land			
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Facility Name	Abbot-Reed-Powell		
Owner/Manager	Conservation Commission		
Location	East Bare Hill/Bolton Road		
Acreage	32.89		
Activity	Hiking & Cross-Country Skiing		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trail	None	None	

Facility Name	Ann Lees Ball Field		
Owner/Manager	Park & Recreation		
Location	Ann Lees Road		
Acreage	3.08		
Activity	Baseball & Soccer		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Gravel Driveway/ No handicapped access to fields	None	None	

Facility Name	Ayer Road Meadows		
Owner/Manager	Conservation Commission		
Location	Ayer Road		
Acreage	23.90		
Activity	Agricultural		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Trails	None	None	

Facility Name	Bamford Land		
Owner/Manager	Conservation Commission		
Location	Murray Lane		
Acreage	1.60		
Activity	Conservation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Trails	None	None	

Facility Name	Barba's Point		
Owner/Manager	Conservation Commission		
Location	Bare Hill Pond		

Acreage	16.10		
Activity	Hiking & Pond Frontage		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trail	None	None	

Facility Name	Barber Land		
Owner/Manager	Conservation Commission		
Location	Shaker Road		
Acreage	27.73		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Bare Hill Wildlife Sanctuary		
Owner/Manager	Conservation Commission		
Location	Bolton Road		
Acreage	44.00		
Activity	Hiking & Cross-country Skiing		
Site Amenities	Trails and Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Barlett Land		
Owner/Manager	Conservation Commission		
Location	Pattee Road		
Acreage	3.20		
Activity	Conservation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Over Grown Site	None	None	

Facility Name	Barrett Land		
Owner/Manager	Conservation Commission		
Location	Massachusetts Avenue		
Acreage	24.11		
Activity	Conservation		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	2016	

Facility Name	Barton 2		
Owner/Manager	Conservation Commission		
Location	Woodside Road		
Acreage	1.97		
Activity	Watershed Protection		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Barton 3		
Owner/Manager	Conservation Commission		
Location	Bowers Brook/Still River Road		
Acreage	15.40		
Activity	Wetland Protection		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	Authority
Wetlands	None	None	None

Facility Name	Barton 4		
Owner/Manager	Conservation Commission		
Location	Abuts Bowers Brook		
Acreage	23.80		
Activity	Wetland Protection		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Black Pond Access		
Owner/Manager	Conservation Commission		
Location	Littleton County Road		
Acreage	3.34		
Activity	Trail Access to Black Pond		
Site Amenities	Trail		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Black Pond		
Owner/Manager	Conservation Commission		
Location	Littleton County Road		

Acreage	56.49		
Activity	Hiking & Nature Study		
Site Amenities	Trail		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trail	None	None	

Facility Name	Blomflet		
Owner/Manager	Conservation Commission		
Location	Ayer Road		
Acreage	29.42		
Activity	Hiking		
Site Amenities	Trail & Parking at Playing Field on Ann Lees Road		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trail	None	None	

Facility Name	BOCA Land		
Owner/Manager	Conservation Commission		
Location	Old Shirley Road		
Acreage	3.90		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Bowers Spring-Sprague		
Owner/Manager	West of Bolton Road		
Location	Conservation Commission		
Acreage	18.90		
Activity	Hiking & Cross-Country Skiing		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Bowers Spring– Visockas		
Owner/Manager	Conservation Commission		
Location	West of Bolton Road		
Acreage	24.09		
Activity	Hiking & Cross-Country Skiing		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Brewer Land		
Owner/Manager	Conservation Commission		
Location	South of Herman Orchard		
Acreage	5.50		
Activity	Preservation of land along Bowers Brook		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wet Swamp	None	None	

Facility Name	Brown Land		
Owner/Manager	Conservation Commission		
Location	Glenview Drive/ South Shaker Road		
Acreage	3.49		
Activity	Preservation and Rehabilitation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Sloping	None	None	

Facility Name	Bull Land		
Owner/Manager	Conservation Commission		
Location	Cruft Lane		
Acreage	0.66		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetland	None	None	

Facility Name	Bush Land		
Owner/Manager	Conservation Commission		
Location	I-495		
Acreage	6.10		
Activity	None		
Site Amenities	Wetlands		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Carey Land		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	2.92		
Activity	Agricultural & Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		

Barriers to Access	Corrective Action	Schedule Change	
No Paved Parking	None	None	

Facility Name	Charles Atherton Case Land		
Owner/Manager	Conservation Commission		
Location	Bolton Road		
Acreage	2.02		
Activity	Conservation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Clapp Land		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	37.61		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Clapp Land 2 & 3		
Owner/Manager	Conservation Commission		
Location	Willard Lane		
Acreage	8.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Steep Trails	None	None	

Facility Name	Cobb Land 1		
Owner/Manager	Conservation Commission		
Location	Oak Hill Road		
Acreage	4.50		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Trails/Wetlands	None	None	

Facility Name	Cobb Land 2		
Owner/Manager	Conservation Commission		
Location	Oak Hill Road		
Acreage	2.52		

Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Coke Land		
Owner/Manager	Conservation Commission		
Location	Littleton Road		
Acreage	32.15		
Activity	Agriculture & Community Gardens		
Site Amenities	Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Colwell Land		
Owner/Manager	Conservation Commission		
Location	Bolton Road		
Acreage	2.70		
Activity	Protection of Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Corzine Land		
Owner/Manager	Conservation Commission		
Location	Littleton Road		
Acreage	3.00		
Activity	Trail		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Damon Land		
Owner/Manager	Conservation Commission		
Location	Brown Road		
Acreage	34.80		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	Expand and Improve Trail System	2017	

Facility Name	Dean's Hill		
Owner/Manager	Conservation Commission		
Location	Prospect Hill Road		
Acreage	32.00		
Activity	Hiking & Cross Country Skiing		
Site Amenities	Trail & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Steep Trails	None	None	

Facility Name	Dunlap Land		
Owner/Manager	Conservation Commission		
Location	Old Littleton Road		
Acreage	34.08		
Activity	Hiking, Cross Country Skiing & Snowmobiling		
Site Amenities	Trail		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Eastview (Elwell) Land		
Owner/Manager	Conservation Commission		
Location	Ayer Road		
Acreage	8.53		
Activity	Trails/view		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Farnsworth Land		
Owner/Manager	Conservation Commission		
Location	Willard Lane		
Acreage	39.00		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Fuller Dudley Woods		
Owner/Manager	Conservation Commission		
Location	Old Littleton Road		
Acreage	10.21		
Activity	Hiking, Cross Country Skiing & Snowmobiling		
Site Amenities	Trails		

Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Gillette/Horse Meadows		
Owner/Manager	Conservation Commission		
Location	Sherry Road		
Acreage	20.04		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Great Elms		
Owner/Manager	Conservation Commission		
Location	Murray Lane		
Acreage	69.18		
Activity	Agricultural & Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Griffin/Dutcher Land		
Owner/Manager	Conservation Commission		
Location	Woodside Road		
Acreage	2.25		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Hammershaimb Land		
Owner/Manager	Conservation Commission		
Location	Woodchuck Hill Road/ Massachusetts Avenue		
Acreage	1.10		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Harvard Historical		
Owner/Manager	Conservation Commission		
Location	Oak Hill/Old Boston Road		

Acreage	1.50		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking or Designated Trail	None	None	

Facility Name	Harvard Park		
Owner/Manager	Park & Recreation		
Location	Lancaster County Road		
Acreage	33.85		
Activity	Track, Soccer & Playground		
Site Amenities	Handicapped Parking & Paved Path to Field		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	Authority
None	None	None	Park & Recreation

Facility Name	Haskell Land		
Owner/Manager	Conservation Commission		
Location	Still River Road/ Willard Lane		
Acreage	12.83		
Activity	Agricultural		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Trails	None	None	

Facility Name	Haskell-Viles Swampland		
Owner/Manager	Conservation Commission		
Location	Woodside Road		
Acreage	4.30		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Herman Orchard		
Owner/Manager	Conservation Commission		
Location	East Ayer Road		
Acreage	50.00		
Activity	Orchard & Trails		
Site Amenities	None		
Transition Plan	None		

Barriers to Access	Corrective Action	Schedule Change	
Narrow Access	None	None	

Facility Name	Hoch Land		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	11.41		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Holy Hill		
Owner/Manager	Conservation Commission		
Location	South Shaker Road		
Acreage	119.56		
Activity	Hiking & Snowmobiling		
Site Amenities	Trails, Parking & Trash Barrels		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Gravel Driveway/Parking, Unimproved Trails	None	None	

Facility Name	Home land		
Owner/Manager	Conservation Commission		
Location	North of Still River road		
Acreage	9.40		
Activity	Wetland		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Access not used	None	None	

Facility Name	Hosking Point		
Owner/Manager	Conservation Commission		
Location	Off Still River Road on Bare Hill Pond, behind Scorgie Tufts		
Acreage	1.70		
Activity	View shed		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Access from parking for Scorgie Tufts	None	None	

Facility Name	Kaufmann land		
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Owner/Manager	Conservation Commission		
Location	Off Shaker Road opposite Holy hill parking lot		
Acreage	20.21		
Activity	Hiking		
Site Amenities	Trail & Parking Across Road		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not easily accessible	None	None	

Facility Name	Klyce Land		
Owner/Manager	Conservation Commission		
Location	Between Coke and Herman Orchard		
Acreage	2.25		
Activity	Wetland		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not used	None	None	

Facility Name	Kronauer land		
Owner/Manager	Conservation Commission		
Location	South side of Sheehan Road		
Acreage	5.35		
Activity	Wetland		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not used	None	None	

Facility Name	Locke Land		
Owner/Manager	Conservation Commission		
Location	Green Hill Road		
Acreage	0.33		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Lacroix land		
Owner/Manager	Conservation Commission		
Location	Green Hill road		
Acreage	16.00		
Activity	Hiking & Shaker well House		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	

Unimproved Trails	None	None	
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Facility Name	Luongo Land		
Owner/Manager	Conservation Commission		
Location	Off Still River Road		
Acreage	26.48		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not Used	None	None	

Facility Name	MacKnight Land		
Owner/Manager	Conservation Commission		
Location	Off Littleton road , adjoins Corzine Land		
Acreage	4.18		
Activity	Hiking		
Site Amenities	Trials		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Narrow trails accessible from Poor Farm	None	None	

Facility Name	Maxant Land		
Owner/Manager	Conservation Commission		
Location	Ayer/ Lancaster County Roads		
Acreage	19.04		
Activity	Hiking/Walking		
Site Amenities	Trails with some Handicap Access to Millie's Path, Parking & Access from Elderly Housing Complex		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Some Unimproved Trails	None	None	

Facility Name	Myrick Land		
Owner/Manager	Conservation Commission		
Location	Corner Ayer Road and Myrick Lane		
Acreage	0.34		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not used	None	None	

Facility Name	Newman 2		
Owner/Manager	Conservation Commission		
Location	Prospect Hill Road		

Acreage	6.69		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Paved Parking	None	None	

Facility Name	Newick Land		
Owner/Manager	Conservation Commission		
Location	Under Pin Hill Road		
Acreage	5.68		
Activity	Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	Authority
Not used			

Facility Name	Old Littleton Meadow		
Owner/Manager	Conservation Commission		
Location	Old Littleton Road		
Acreage	8.10		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Old Mill Road		
Owner/Manager	Conservation Commission		
Location	Old Mill Road		
Acreage	24.00		
Activity	Hiking		
Site Amenities	Trail & Roadside Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Stone walls	None	None	

Facility Name	Pena/ Fairbank		
Owner/Manager	Conservation Commission		
Location	Brown Road		
Acreage	4.90		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not used	None		

Facility Name	Pin Hill/ Cram Land		
Owner/Manager	Conservation Commission		
Location	Depot Road		
Acreage	10.20		
Activity	Hiking & Historic Sites		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Steep Access	None	None	

Facility Name	Pin Hill/Wilfert Land		
Owner/Manager	Conservation Commission		
Location	Harvard Depot Road		
Acreage	4.68		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Handicapped Access	None	None	

Facility Name	Poitras Land		
Owner/Manager	Conservation Commission		
Location	Willard Lane		
Acreage	13.37		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Prospect Hill (Newman)		
Owner/Manager	Conservation Commission		
Location	Prospect Hill Road		
Acreage	61.51		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Handicapped Access	None	None	

Facility Name	Rennie Land		
Owner/Manager	Conservation Commission		
Location	Sheehan/ Littleton Road		
Acreage	5.10		
Activity	Wetlands		
Site Amenities	None		

Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Robb Land		
Owner/Manager	Conservation Commission		
Location	Fairbanks Street/Old Boston Road		
Acreage	1.77		
Activity	Open Space & Wetlands		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Rodriquez Land		
Owner/Manager	Conservation Commission		
Location	Herman Orchard/Bowers Brook		
Acreage	5.35		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Handicapped Access	None	None	

Facility Name	Rodriquez Land 2		
Owner/Manager	Conservation Commission		
Location	Cruft Lane		
Acreage	7.86		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Handicapped Access	None	None	

Facility Name	Rowe Land		
Owner/Manager	Conservation Commission		
Location	Sherry Road		
Acreage	6.33		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Rueben Reed Land		
Owner/Manager	Conservation Commission		
Location	Ayer Road		

Acreage	0.32		
Activity	Town Common		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Russo Land		
Owner/Manager	Conservation Commission		
Location	Shaker Road		
Acreage	21.13		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Ryan Playing Fields		
Owner/Manager	Park & Recreation		
Location	Harvard Depot Road		
Acreage	30.33		
Activity	Soccer		
Site Amenities	Restroom & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Gravel Parking Area	None	None	

Facility Name	Schmidt (Doebele) Land		
Owner/Manager	Conservation Commission		
Location	Mill/Under Pin Hill Road		
Acreage	4.96		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Universal Access	None	None	

Facility Name	Schwabb Land		
Owner/Manager	Conservation Commission		
Location	Shaker Road		
Acreage	5.18		
Activity	Conservation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
None	None	None	

Facility Name	Scorgie Land		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	34.00		
Activity	Hiking		
Site Amenities	Trail & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Limited Access	None	None	

Facility Name	Shapley Land		
Owner/Manager	Conservation Commission		
Location	Pinnacle Road		
Acreage	9.10		
Activity	Orchard		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Sister of St. Scholastica		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	7.81		
Activity	Agricultural		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Slattery Land#1		
Owner/Manager	Conservation Commission		
Location	Abuts Coke Land		
Acreage	5.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Handicapped Access	None	None	

Facility Name	Slattery Land#2		
Owner/Manager	Conservation Commission		
Location	Stow Road		
Acreage	12.80		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		

Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Smith Land		
Owner/Manager	Conservation Commission		
Location	Oak Hill Road		
Acreage	2.51		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access	None	None	

Facility Name	Smith Land		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	3.50		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Limited parking	None	None	

Facility Name	Sprague Land#1		
Owner/Manager	Conservation Commission		
Location	West Bare Hill Road		
Acreage	48.56		
Activity	Hiking		
Site Amenities	Trail & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unpaved Parking	None	None	

Facility Name	Sprague Land#2		
Owner/Manager	Conservation Commission		
Location	West Bare Hill Road		
Acreage	17.42		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unpaved Parking	None	None	

Facility Name	Sprague Land#3		
Owner/Manager	Conservation Commission		
Location	West Bare Hill Road		

Acreage	56.46		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unpaved Parking	None	None	

Facility Name	Stephenson#1		
Owner/Manager	Conservation Commission		
Location	I-495		
Acreage	25.00		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	Stephenson#2		
Owner/Manager	Conservation Commission		
Location	I-495		
Acreage	6.00		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access or Parking	None	None	

Facility Name	Stephenson#3		
Owner/Manager	Conservation Commission		
Location	I-495		
Acreage	10.80		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Access or Parking	None	None	

Facility Name	Stephenson#4		
Owner/Manager	Conservation Commission		
Location	Brown Road		
Acreage	0.22		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Limited Parking	None	None	

Facility Name	Stephenson#5		
Owner/Manager	Conservation Commission		
Location	Brown Road		
Acreage	11.10		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Limited Parking	None	None	

Facility Name	Stone Land		
Owner/Manager	Conservation Commission		
Location	Old Mill Road		
Acreage	6.00		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Universal Access	None	None	

Facility Name	Sturdy Land		
Owner/Manager	Conservation Commission		
Location	Slough Road		
Acreage	10.23		
Activity	Hiking		
Site Amenities	Trail & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Universal Access	None	None	

Facility Name	Sullivan Land		
Owner/Manager	Conservation Commission		
Location	South Shaker Road		
Acreage	9.53		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Unimproved Trails	None	None	

Facility Name	Terry Land		
Owner/Manager	Conservation Commission		
Location	Bare Hill Pond		
Acreage	7.38		
Activity	Wetlands		
Site Amenities	None		

Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Wetlands	None	None	

Facility Name	Thurston's Cove		
Owner/Manager	Conservation Commission		
Location	Warren Avenue		
Acreage	2.70		
Activity	Conservation		
Site Amenities	Signage		
Transition Plan			
Barriers to Access	Corrective Action	Schedule Change	Authority
No parking, unpaved entrance, no vehicle access allowed in flat area where handicap could be accessible	Add parking or allow vehicle access for "drop off" in flatter area		

Facility Name	T.O.A.D. Land		
Owner/Manager	Conservation Commission		
Location	Old Littleton Road		
Acreage	1.16		
Activity	Conservation		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No easy access, signage and no trails	Add signage and parking	None	

Facility Name	Town Beach		
Owner/Manager	Park & Recreation		
Location	Pond Road		
Acreage	18.34		
Activity	Swimming & Boating		
Site Amenities	Restrooms & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Bathrooms not handicapped accessible	None	None	

Facility Name	Town Forest		
Owner/Manager	Conservation Commission		
Location	Poor Farm Road		
Acreage	2.20		
Activity	Hiking		
Site Amenities	None		

Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking/ Unimproved Trails	None	None	

Facility Name	Town Forest		
Owner/Manager	Conservation Commission		
Location	Poor Farm Road		
Acreage	9.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking/ Unimproved Trails	None	None	

Facility Name	Town Forest		
Owner/Manager	Conservation Commission		
Location	Poor Farm Road		
Acreage	29.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking/ Unimproved Trails	None	None	

Facility Name	Tripp Land		
Owner/Manager	Conservation Commission		
Location	Brown Road		
Acreage	44.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No parking at trail head, no signage. Chain across trailhead making access impossible for wheelchairs	Add area for parking, add signage and remove chain for possible wheelchair access	None	

Facility Name	Tufts Land#1		
Owner/Manager	Conservation Commission		
Location	Turner Lane		
Acreage	23.80		
Activity	Hiking		

Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not Handicapped Accessible	None	None	

Facility Name	Tufts Land#2		
Owner/Manager	Conservation Commission		
Location	Still River Road		
Acreage	15.00		
Activity	Hiking		
Site Amenities	Trails		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No signage, parking or visible trails	Add signage, parking and mark trails	None	

Facility Name	Tully Land		
Owner/Manager	Conservation Commission		
Location	Behind Ryan Athletic Fields		
Acreage	11.50		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Have to go through field to access land, not paved. Trails not wheelchair accessible.	Pave walkway to access	None	

Facility Name	Vesenka Land		
Owner/Manager	Conservation Commission		
Location	Old Littleton Road		
Acreage	24.53		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not wheeler chair accessible, trails not paved	None	None	

Facility Name	Waite Field		
Owner/Manager	Park & Recreation		
Location	Lancaster County Road		

Acreage	5.05		
Activity	Soccer		
Site Amenities	Trash Barrels		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Gravel Parking/No handicapped access to fields	None	None	

Facility Name	Warilla Land		
Owner/Manager	Conservation Commission		
Location	Stow Road		
Acreage	31.68		
Activity	Cross Country Skiing		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Parking	None	None	

Facility Name	White Lane		
Owner/Manager	Conservation Commission		
Location	White Lane		
Acreage	19.97		
Activity	Open Space		
Site Amenities	Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
Not Wheel chair accessible, no signage marking where there is public access, not paved	Add signage and pave trails	None	

Facility Name	Willard Land		
Owner/Manager	Conservation Commission		
Location	Willard Lane		
Acreage	48.50		
Activity	Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Paved Parking	None	None	

Facility Name	Williams Land		
Owner/Manager	Conservation Commission		
Location	Stow Road		
Acreage	64.25		

Activity	Agricultural & Hiking		
Site Amenities	Trails & Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No Paved Parking	None	None	

Facility Name	Williams Pond		
Owner/Manager	Conservation Commission		
Location	Stow Road		
Acreage	5.20		
Activity	Pond		
Site Amenities	Parking		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No wheelchair access	None	None	

Facility Name	Willow Road Land		
Owner/Manager	Conservation Commission		
Location	Willow Road		
Acreage	2.85		
Activity	Open Space		
Site Amenities	None		
Transition Plan	None		
Barriers to Access	Corrective Action	Schedule Change	
No signs or parking	Add signage and parking	None	

Town of Harvard Personnel Policies & Procedures

CHAPTER 6 - RECRUITMENT AND SELECTION

The Town shall make every effort to attract and employ qualified persons. Every person, regardless of race, color, creed, age, sex, religion, physical handicap or national origin, applying for employment in the Town will receive equal treatment. Persons shall be recruited from a geographic area as wide as necessary to assure that qualified candidates apply for various positions. The recruitment, selection and promotion of candidates and employees shall be based solely on job related criteria as established in the position descriptions and in accordance with proper personnel practices.

6.1 Recruitment

The department supervisors in conjunction with the Town Administrator shall have a major role in the recruitment and selection of personnel. The qualifications, classification and salary range for positions shall be established in accordance with the classification and compensation plans.

6.1.1 Notice of Vacancies

Department supervisors with the assistance of the Town Administrator, upon the identification of a vacancy or on the authorization of a new position, shall prepare a job vacancy notice. The job vacancy notice shall include: the job title, major duties of the position, qualifications, salary ranges, a closing date for applications, and application instructions. The Town Administrator shall review and approve all job notices prior to advertisement and posting. Recruitment for a position shall not begin until the job vacancy notice is approved by the Town Administrator.

6.1.2 Posting and Advertisement of Job Vacancy Notices

Notices of vacant positions shall be posted for employees to review. Advertising for entry level positions should be adequate to ensure that a sufficient number of qualified applicants apply for available vacancies. The position must be advertised at least ten (10) days prior to the closing date for application.

6.1.3 Applications

All candidates applying for employment in the Town shall complete an official employment application form and return the form to the Appointing Authority prior to the end of the working day of the closing date specified in the position announcement. Each applicant shall sign the form, and the truth of all statements shall be certified by the applicant's signature.

6.1.4 Methods of Selection

The department supervisor shall establish any one or a combination of selection procedures in order to determine the candidates' fitness and ability to perform in the position:

- * Written examination
- * Interview
- * Oral Interview Panel
- * Practical (or performance) Test
- * Evaluation of Experience and Training

6.1.5 The department supervisor shall also determine in each instance:

- * Whether each procedure shall be used to screen applicants on a "qualified" - "not qualified" basis or to form part of an overall composite of the applicant's fitness and ability to perform in the position; and

- *When a combination of procedures is used, the relative weight to be assigned each procedure.

6.1.6 References

A candidate's former employers, supervisors, and other references may be contacted as part of the selection process. References and other background investigations shall be documented and made part of the applicant's file. All reference checks and investigations shall be complete prior to the offer of employment.

6.1.7 Application Records

The application, reference checks, and related documents submitted shall be maintained by the Town Administrator for the period required by law. The Town shall to the extent possible maintain the confidentiality of the application.

6.1.8 Appointment

All appointments shall be made in writing by the appointing authority. The written notice of appointment shall include the salary, the starting date, and any conditions of employment not covered in these personnel policies. Copies of the notice of appointment shall be provided to the Town Administrator.

6.1.9 Medical Examinations

Persons selected for employment with the Town, after receipt of notice of such appointment and prior to the starting date of employment, shall be required to undergo a medical examination. The examination shall be at the expense of the Town by a physician designated by the board of selectmen. The examining physician shall advise as to the applicant's physical fitness for the job being sought. A psychological exam may be given for selected employees. The physical exam may be waived by the Personnel Board or Board of Selectmen.

6.1.10 Failure to Report

An applicant, who accepts an appointment and fails to report to work on the day set by the appointing authority, shall be deemed to have declined the appointment and the offer of employment shall be withdrawn.

Appendix 4: Town of Harvard Equal Opportunity Employment Policy

I. Non-Discrimination in Employment

The Town of Harvard prohibits discrimination in employment on the basis of:

- Age (40 and above),
- Criminal record (applications only),
- Physical, mental, or psychiatric disability,
- Genetics (results of genetic testing),
- Gender Identity
- Parental leave,
- National origin or ancestry,
- Race or color,
- Religion,
- Sex,
- Sexual orientation, or
- Active military status.

Unlawful discrimination of employees occurring in the workplace or in other settings in which employees may find themselves in connection with their employment will not be tolerated by the Town. Further, any retaliation against an individual who has formally or informally complained about discrimination or has cooperated with an investigation of a discrimination complaint is prohibited. To achieve our goal of providing a workplace free from discrimination, the conduct that is described in this policy will not be tolerated, and we will implement the procedure described below to address any potential inappropriate conduct.

The Town of Harvard commits itself and its employees, within the context of Massachusetts and federal civil rights laws, to ensure equitable participation of employees of all backgrounds in all of its daily operations.

This policy applies to all employment practices and employment programs sponsored by the Town. This policy shall apply, but not be limited to, the areas of:

- Recruitment,
- Selection,
- Compensation and benefits,
- Professional development and training,
- Reasonable accommodation for disabilities or religious practices,
- Promotion,
- Transfer,
- Termination,
- Layoff, and
- Other terms and conditions of employment.

Because the Town takes allegations of discrimination seriously, we will respond promptly to complaints and where it is determined that inappropriate conduct has occurred, we will act promptly to eliminate the conduct and impose any necessary corrective action, including disciplinary action.

II. Discriminatory Harassment

The Town's separate Harassment Policy details our commitment to a workplace free to any verbal or physical conduct which is unwelcome, severe or pervasive, and related to membership or perceived membership in a protected class.

III. Reasonable Accommodation

Employees seeking reasonable accommodations may submit their request in writing to Marie Sobalvarro, 13 Ayer Road, Harvard MA 01451 (msobalvarro@harvard.ma.us, or 978-456-4100 x330).

IV. Discrimination Complaints

If any of our employees believes that he or she has been subjected to unlawful discrimination, the employee has the right to file a complaint with our organization. This may be done in writing or orally.

If you would like to file a complaint you may do so by contacting Marie Sobalvarro, 13 Ayer Road, Harvard MA 01451 (msobalvarro@harvard.ma.us, or 978-456-4100 x330).

She is also available to discuss any concerns you may have, and to provide information to you about our Equal Employment Opportunity policy and our complaint process. Alternatively, employees may contact their Department Head.

V. Discrimination Investigation

The Town will promptly investigate the allegation in a fair and thorough manner. The investigation will be conducted in such a way as to maintain confidentiality to the extent practicable under the circumstances. The investigation will include private interviews with the person filing the complaint, the person alleged to have committed the discrimination, and relevant witnesses.

When we have completed our investigation, we will, to the extent appropriate, inform the person filing the complaint and the person alleged to have committed the conduct of the results of that investigation.

If it is determined that inappropriate conduct has occurred, we will act promptly to eliminate the offending conduct, and where it is appropriate we will also impose disciplinary action.

VI. Disciplinary Action

If it is determined that inappropriate conduct has been committed by one of our employees, we will take such action as is appropriate under the circumstances. Such action may include counseling, verbal or written warning, suspension, or termination.

VII. State and Federal Remedies

In addition to the above, if you believe you have been subjected to unlawful discrimination, you may file a formal complaint with either or both of the government agencies set forth below. Using our complaint process does not prohibit you from filing a complaint with these agencies. Each of the agencies has a time period of 300 days for filing a claim.

- The United States Equal Employment Opportunity Commission (EEOC): John F. Kennedy Federal Building, 475 Government Center, Boston, MA 02203, (800)-669-4000

- The Massachusetts Commission Against Discrimination (MCAD):
 - Boston Office: One Ashburton Place, Rm. 601, Boston, MA 02108, (617) 994-6000
 - New Bedford Office: 800 Purchase Street, Room 501, New Bedford, MA 02740, (508) 990-2390
 - Springfield Office: 424 Dwight Street, Rm. 220, Springfield, MA 01103, (413) 739-2145
 - Worcester Office: 484 Main Street, Room 320, Worcester, MA 01608, (508) 453-9360